

**ASSESSING THE COMMUNICATION CLIMATE FOCUS OF PROFESSIONAL  
NURSES IN SELECTED PUBLIC HOSPITALS IN THE GAUTENG PROVINCE  
THROUGH THE DEVELOPMENT OF A MEASURING INSTRUMENT**

by

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for the degree of

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**UNIVERSITY OF SOUTH AFRICA**

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## **DECLARATION**

I declare that **ASSESSING THE COMMUNICATION CLIMATE FOCUS OF PROFESSIONAL NURSES IN SELECTED PUBLIC HOSPITALS IN THE GAUTENG PROVINCE THROUGH THE DEVELOPMENT OF A MEASURING INSTRUMENT** is my own work and that all sources used or cited have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

November 2017

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**J-D WAGNER**

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**DATE**

## **DEDICATION**

To my mother, for her support, inspiration,  
and for being a life-long role model to me.

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All praise and glory to God Almighty.

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**ABSTRACT**

The purpose of this study was to develop and test a measuring instrument based on the Gibb's Defensive Communication Climate Paradigm (1961) to assess the communication climate focus of professional nurses in selected public hospitals in the Gauteng province. This focus involves the communication behaviour orientation of the professional nurses and their perceptions of the communication behaviour orientation of their operational managers. The Gibb's model comprises six bipolar conceptual continuums, namely Evaluation-Description, Control-Problem orientation, Strategy-Spontaneity, Neutrality-Empathy, Superiority-Equality and Certainty-Provisionalism Continuums.

The study consisted of a non-experimental design, including a developmental phase and a testing phase. During the developmental phase the researcher developed a measuring instrument (a Semantic Differential Scale questionnaire); used a simple, random sample method to pre-test the instrument; analysed the data by applying Cronbach's Alpha reliability analysis and refined the instrument. Further refinement of this new instrument by future researchers is recommended. During the testing phase the researcher also used a simple, random sample, consisting of professional nurses ( $N = 270$ ) from three selected public hospitals in Gauteng; tested the items against the biographical data and the three research questions and analysed the obtained data by utilising both descriptive and inferential statistics. A Delphi panel of experts were involved in both phases of the study.

The results of the study indicated that although the respondents had a predominantly supportive communication behaviour orientation, they were more focused on the communication behaviour of their operational managers than on their own. Furthermore, the results indicated no significant differences in the influencing factors: age, tenure (periods in hospital), gender, language and institution (public hospital), in terms of the six conceptual continuums. Significant differences were found only in the factor: unit/ward, indicating that the supportiveness of the communication behaviour of professional nurses could be dependent on their specific work environment.

Guidelines aimed at the development of a supportive climate were drawn up for the National Department of Health, Gauteng Department of Health, public hospitals, operational managers and professional nurses. It is recommended that implementation of the newly developed guidelines be pivotal for public hospitals, to refocus their communication climates towards supportive communication.

## **KEY CONCEPTS**

- Communication climate
- Communication climate focus
- Evaluation-Description Continuum
- Control-Problem orientation Continuum
- Strategy-Spontaneity Continuum
- Neutrality-Empathy Continuum
- Superiority-Equality Continuum
- Certainty-Provisionalism Continuum
- Defensive communication
- Supportive communication
- Measuring instrument
- Public hospitals
- Professional nurses
- Operational managers

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## CHAPTER 8

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## GLOSSARY

- **Behaviour**

*Behaviour* is defined by Keltner, Bostrom and McGuinness (2011:509) as “any observable, recordable and measurable movement, response, or act of an individual”.

- **Characteristics of an instrument**

The characteristics of an instrument, according to Burns and Grove (2009:371-372) are certain criteria with which an instrument must comply in order to be considered fit for the purpose for which it was developed. Reliability, validity, sensitivity, objectivity and ethical acceptability are examples of the characteristics of an instrument.

- **Communication Climate Focus**

The Communication Climate Focus of an individual or individuals emphasises a positive or negative communication behaviour orientation within a specific psychological environment. Within a communication climate individuals maintain either a defensive or a supportive communication climate focus (Gibb 1961). Orientation is defined as “a person’s basic attitude, beliefs, or feelings in relation to a particular subject or issue” and focus as “an act of concentrating interest or activity on something” (*Oxford English On-line Dictionary*). This study investigates the attitude and beliefs of professional nurses in relation to their communication climate by assessing their communication behaviour orientation (communication climate focus).

- **Defensive communication**

Defensive communication encompasses the physical manifestation of aggression, verbal attacks, anger, or passive and withdrawal behaviour. It leads to problems such as injured feelings, alienation in working relationships, destructive and retaliatory behaviour, communication breakdowns, non-productive efforts and problem-solving failures (Bagraim, Cunningham, Potgieter & Viedge 2007:183).

- **Defensive communication climate**

A defensive communication climate is a climate in which the individual feels threatened or anxious when in communication with others. Outwardly, the conversation may appear normal, while inwardly the person is putting mental energy into defending himself or herself (Gibb 1961; 1979).

- **Empirical referents (concepts)**

Categories of actual phenomena that by their existence or presence prove the occurrence of the phenomenon are named empirical referents (concepts). A theoretical example of these categories is the items in a questionnaire on a specific topic. Empirical referents and defining or critical attributes (the cluster most frequently associated with the concept) are often the same, especially when concepts are found in clinical practice (Chinn & Cramer 2008:196; Walker & Avant 2005:73-74).

Attributes might be abstract and empirical referents difficult to determine, however, during the development of instruments with which to measure phenomena, identified empirical referents can be very useful, and provide the clinician with clear, observable phenomena in clinical practice to identify the existence of a concept (Chinn & Cramer 2008:196; Walker & Avant 2011:168-169).

- **Ethical acceptability**

The rights of all respondents must be protected, therefore the researcher must adhere to the professional, legal and social obligations to the respondents in order for the study to be ethically acceptable (Du Plooy 2009:53; Polit & Beck 2012:154). Ensuring that all the respondents participate voluntarily in a study and that confidentiality is upheld are examples of ethical acceptability.

- **Interpersonal communication**

Interpersonal communication refers to communication occurring between people face to face. Daily communication interactions between managers and employees represent the interpersonal communication in the organisation (Steinberg 2007:62).



- **Objectivity**

According to Polit and Beck (2012:191), objectivity refers to the non-distortion of the personal feelings, beliefs, values, attitudes and biases of the researcher and/or the respondent through the exclusive use of facts.

- **Organisational communication**

Organisational communication is a system identified by purpose, operational procedures and structure; within a health service it refers to communication where team members communicate in the unit, as well as within the hospital (Jooste 2010: 208-209).

- **Paradigm**

Polit and Beck (2012:11, 736) describe a paradigm as a method of viewing natural phenomena, that includes a set of philosophical assumptions to direct the approach to enquiry that a person may use.

- **Perception**

*Perception* is defined as “the ability to see, hear or become aware of something through the senses” and as “a way of regarding, understanding or interpreting something” (*Dictionary.com* 2012, sv “perception”; Soanes, Stevenson & Hawker 2009:1063).

- **Reliability**

Reliability refers to the consistency, constancy, accuracy and precision with which an instrument measures the attributes it is designed to measure (Burns & Grove 2009:377-380; Polit & Beck 2012:741).

- **Sensitivity**

Sensitivity refers to how small a variation in an attribute can be reliably detected and measured by an measuring instrument, thus how sensitive the instrument is (Burns & Grove 2009:389; Polit & Beck 2012:286; 342 & 742).

- **Supportiveness**

Support refers to the “furnishing of another person with comfort, recognition, approval, encouragement...” (Reber, Allen & Reber 2009:790). This study mainly utilised the term *support* in its adjectival form (*supportive*) and the extended noun, the quality of *supportiveness*.

- **Supportive communication**

Supportive communication refers to communication that is assertive, direct and powerful. It is the constructive, healthy alternative to defensive behaviour within organisational communication (Bagraim, Cunningham, Potgieter, Viedge 2007:183).

- **Supportive communication climate**

A supportive communication climate is a climate in which the individual feels less threatened than in a defensive climate, so that more emotional and mental energy is applied to the content and meaning of the message rather than to composing a defensive response (Gibb 1961; 1979).

- **Validity**

Validity refers to how accurate an instrument measures the concept or construct it claims to measure, thus referring to the relevance of the measure (Burns & Grove 2009:727; Polit & Beck 2012:745).

## **List of abbreviations and acronyms**

|       |                               |
|-------|-------------------------------|
| ANOVA | Analysis of Variance          |
| RSA   | Republic of South Africa      |
| sa    | sine anno (date unknown)      |
| SANC  | South African Nursing Council |
| SAS   | Statistical Analysis System   |
| SDS   | Semantic Differential Scale   |
| sv    | sub verbo (under the word)    |

# CHAPTER 1

## ORIENTATION TO THE STUDY

### 1.1 INTRODUCTION

Nursing practice revolves around information sharing and trust; communication, according to numerous studies conducted in various contexts (Scheider, Chapman & Schapiro 2009; Thomas, Zolin & Hartman 2009) plays a critical role in developing and maintaining trust. The foundation of trust between any persons can be found in the communicative element of a relationship. In the context of nursing, this renders communication the most important tool that nurses have at their disposal (Muller, Bezuidenhout & Jooste 2011:314). However, for nurses to interact effectively with each other, the level of collaboration, trust and supportiveness between them must be high. Mellish, Oosthuizen and Paton (2010:131) and Pera and Van Tonder (2011:121) agree, stating that mutual respect and trust must characterise the relationships between nurses; hence all communication between them must also be supportive. The concept of *supportive communication* is not a neologism; on the contrary, it is often used in the United States of America (US) (Adams & Galanes 2012; Gibb 1961), Europe (Costigan & Schmeidler 1984; Czech & Forward 2013; Czech 2007; Forward, Czech & Lee 2011) and African countries such as Ethiopia (Nobile 2008). *Supportive communication* refers to communication that is assertive, direct, powerful, constructive and healthy (Bagraim, Cunningham, Potgieter & Viedge 2007:183).

Although the importance of communication in nursing practice is clear, communication does not occur in a vacuum. Communication occurs within the communication climate of an organisation, such as a public hospital, in which various communicators, such as nurses, are involved. A *communication climate* refers to a psychological environment (the general socio-emotional feeling produced between the leader and the group), which should be supportive in nature (Trenholm 2011:185). It is thus not uncommon for nurses, such as operational managers and professional nurses to interact frequently with each other through interpersonal communication (Bagraim, Cunningham, Pieterse-Landman, Potgieter & Viedge 2011:188) within public hospitals.

Consequently, considering the importance of communication in nursing practice, it is evident that the climate in public hospitals must facilitate supportive communication. It is therefore imperative to assess the current communication climate in public hospitals, to ascertain the supportiveness thereof. To this end this study will utilise the Gibb's Defensive Communication Climate Paradigm (1961). This paradigm includes six mini-model continuums which are bipolar in nature; each provides a continuum ranging between a defensive communication climate pole and a supportive communication climate pole (see section 1.9.2.4 and Figure 1.1).

## **1.2 BACKGROUND TO THE RESEARCH PROBLEM**

One of the main functions of communication, according to Muller et al (2011:316), is to form a fundamental mechanism by which members in a group can show their feelings of satisfaction or frustration, and therefore it provides a release for emotional expression of feelings and fulfilment of their social needs. Effective communication is essential for attaining the goals of an organisation (Ferreira, Erasmus & Groenewald 2009:95; Maenetja 2009:82), and a conducive communication climate is required to effect communication within an organisation (Jones & George 2008:633-634).

In general, hospitals have four identified groups of communicators, namely medical professionals, nursing professionals, patients and patients' families (Pera & Van Tonder 2011:76; Runkel 2013:64). These communicator groups create the communication climate of a hospital, which should, according to Trenholm (2011:185-186), ideally be supportive in nature. Different studies have investigated the role communication plays in the interactions between these four communicator groups. Manojlovich (2010) and Shannon and Myers (2012) found the communication experiences between the nurse-physician communicator groups vicarious and unsupportive. Other researchers, such as Taylor, Lillis and LeMone (2001) and Oosthuizen (cited in Pera & Van Tonder 2011) found that nurses considered their communication experiences with other members of the multi-professional team to be poor. Studies on nurse-patient and nurse-patient's family interaction conducted by Leonard, Graham and Bonacum (2004), McCabe (2004) and Runkel (2013), found communication experiences between nurses and patients and/or patient's families abrupt and ineffective.

Professional nurses are obligated to interact on a continuous basis with other nurses and operational managers, however, the results of various South African research studies (Geyer 2004; 2005; Kooker, Schoultz & Cordier 2007; Landman, Mouton & Nevhutalu 2001; Von Holdt & Maseramule 2005; Von Holdt & Murphy 2006; Wagner 2013; Zuma 2007) revealed an uncivil, uncooperative communication phenomenon among professional nurses in most public health care services.

Landman et al (2001) conducted an ethics audit at one of the largest public hospitals in the Gauteng province, evaluating communication as one of its audit criteria. This audit revealed the existence of uncooperative communication behaviour. A follow-up study by Von Holdt and Maseramule (2005) found that nursing communications were forced, authoritative and focused on dogmatic behaviour, causing the focus of communication to be on the transmission of information, with the nurse as passive receiver of information, and the development of a nursing practice-communication integration gap.

Most relational problems between nurses stem from poor professional ties, favouritism and the absence of support and cooperation (Pera & Van Tonder 2011:120). Studies by Keepnews, Brewer, Kovner and Hyun Shin (2010), Leiter, Jackson and Shaughnessy (2009) and Leiter, Price and Spence Laschinger (2010) reveal that the nursing profession finds itself amidst a new generation of nurses. These studies report that older and younger nurses hold different perceptions of the work environment. The negative attitudes of more senior nurses towards younger nurses have become an all too familiar sight (Oosthuizen 2012:57) and workplace incivility is the order of the day in nursing practice. This phenomenon of incivility in nursing practice has been investigated by various studies (Anthony & Yastik 2011; Geyer 2005; Stanley, Martin, Michel, Welton & Nemeth 2007).

*Workplace incivility* is characterised by intimidating and disruptive behaviour and is defined as “*low-intensity* deviant behaviour with ambiguous intent to harm the target, in violation of workplace norms for mutual respect” (Andersson & Pearson 1999, cited in Anthony & Yastik 2011:141). Moreover, Anthony and Yastik (2011:141) state that in nursing practice incivility originates from a long history of oppression and subordination that have led nurses to become frustrated and direct their frustration at others (specifically towards those with lesser power, such as patients and junior colleagues).

Geyer (2004; 2005) investigated the phenomenon of verbal abuse in South African health services. Verbal abuse is the most extreme form of uncivil communication behaviour and includes behaviour such as verbal attacks, verbal affront, infighting, scapegoating and sabotage. Geyer (2005:42-43) includes verbal abuse in her list of workplace violence under the heading "lateral (horizontal) violence". Studies conducted by Geyer (2004; 2005) reveal that verbal abuse is one of the most prevalent forms of workplace violence in South African health care services (Geyer 2005:42). In support of these studies, statistics compiled during a study on workplace violence among health care workers in South Africa indicated that verbal abuse among the health care workers in the public sector rated as high as 60.1% (Marais-Steinman 2002, cited in Geyer 2005:42; Pera & Van Tonder 2011:134). In marked contrast, it seems as though the private health care sector holds a more supportive orientation towards communication among its employees, evidenced by the infrequency of verbal abuse among its staff, rating at a lower 38.7% (Marais-Steinman 2002, cited in Geyer 2005:42).

Kooker et al (2007:34) conducted a study on emotional intelligence and found that South African nurses nurtured relationships and acted as change agents during times of change at their health services, but became frustrated when their communications were disregarded and their attempts at creating a shared vision and teamwork were ignored. The disregard for nurse communication and teamwork efforts resulted in disgruntled nurses, and a negative communication climate developed.

The main consequence of dissatisfaction with communication and incivility in the nursing profession is that whenever professional relationships are poor or absent, both the nurse and the profession will suffer. Professional nurses will have to adapt their communication behaviour to ensure cooperation and satisfaction in their interpersonal relations. To achieve this goal, all professional nurses will have to embrace supportive and collaborative communication behaviour. Operational managers and professional nurses have the potential to create a climate that improves two-way communication and encourages personal involvement with the communication effort (Muller et al 2011:317). This collaborative effort towards improving communication promotes the idea of a unified purpose and will strengthen the bond between professional nurses.

Refocusing the communication climate of public hospitals will not be a quick or easy accomplishment, and facilitating such a refocus will involve a few key role players.

These role players will include the National Department of Health, the Gauteng Department of Health, the nurse managers (Directors and Assistant Directors), operational managers and professional nurses.

The authority governing public hospitals must support the refocus to a more supportive communication climate. In 2011 the National Department of Health developed a strategic plan for nursing for 2012 to 2016, providing for dedicated nursing structures and stating that communication should improve (NDoH 2011). The Gauteng Department of Health, (as provincial health authority governing all health care services in Gauteng) has taken cognisance of the communication ineffectiveness in its public hospitals, as one of many challenges facing public health care services. In reaction to this internal communication challenge the Gauteng Department of Health launched a Turnaround Strategy in 2012, to address and also redress this lack of a positive communication climate in public health care services (GDoH 2012).

Operational managers have to adapt their communication focus to motivate professional nurses to engage in two-way, collaborative communication with them (Muller 2009:313, 316). They have to emphasise to professional nurses that *how* to communicate is just as important as *what* is communicated. While adapting their focus, operational managers may experience a risk-taking element when exercising two-way communication: the fear that professional nurses might exploit this conciliatory concession. It appears that this fear has created a significant obstacle to the efficacy of manager-professional nurse communications in the past (Manamela 2009:253; Wagner 2013).

Although the role of nurse managers (directors and operational managers) can never be overestimated during communication, professional nurses and registered midwives still outnumber managers by far. Professional nurses in the Gauteng province numbered 33 597 in 2013 (South African Nursing Council [SANC] 2014; Health Systems Trust 2014). Of these professional nurses, the majority are employed by hospitals in the public health sector. They represent one of the most important role player bodies in these health care organisations (SANC 2014).

In summary, attention is focused and refocused on the communication climate and the supportive aspect thereof in nursing, with a resultant refocusing on the way professional nurses communicate. Professional nurses are part of the health care team and they contribute towards the nursing profession. Moodley (2011:32) agrees with Meiring (2010:1) that nurses form “the heart and backbone of a health service”. Without professional nurses, health services will collapse. Considering this essential role professional nurses play in health care services, they are mandated to interact, work [and communicate] with their colleagues on a daily basis towards the realisation of set organisational goals such as promoting the welfare of their patients (Searle, Human & Mogotlane 2009:52-53).

### **1.3 RESEARCH PROBLEM**

From various studies (Enslin 2005; Geyer 2004, 2005; Kooker et al 2007; Landman et al 2001; Von Holdt & Maseramule 2005; Wagner 2013; Zuma 2007), it appears that professional nurses’ dissatisfaction with communication exists in South African public hospitals. The communication climates in these hospitals should be supportive and collaborative in nature, as communication climates that are negative can be harmful to nursing practice. Communication dissatisfaction could have a negative impact on the quality of patient care outcomes, and lead to dissatisfaction among members of the multi-professional team, patients and patients’ families.

The Gauteng province, as the largest employer of professional nurses in the country, for both public and private sectors, is faced with service challenges that contribute to a negative practice environment. The lack of means of communication is highlighted as one of these service challenges and needs to be addressed, with other challenges, in order to create and sustain a positive work climate (Zuma 2007:52). The said professional nurses are not supportive communicators at interpersonal level and are therefore also, in effect, not adhering to their code of conduct. The *Code of Conduct for the Public Service* (South Africa 2001) stipulates that all employees of the public service (including professional nurses) must deal fairly, professionally and equitably with other employees, “irrespective of race, gender, ethnic or social origin, colour, age, sexual orientation, disability, religion, political persuasion, conscience, belief, culture and language” (South Africa 2001).



Zuma (2007:52) claims that a lack of communication satisfaction is evident within the National Department of Health, pertaining to administrative matters, nurse-manager communication, interpersonal relationship challenges and performance appraisal system. In the light of these claims, Wagner (2013) investigated the satisfaction of professional nurses with their communication in public hospitals in the City of Johannesburg, from the perspective of the Downs and Hazen Communication Satisfaction Paradigm (Downs & Hazen 1977).

In Wagner's (2013) study, three strata of respondents, namely professional nurses, operational managers and nurse managers described their satisfaction with communication in three contexts: interpersonal, group and organisational context. The results of his study revealed a high level of dissatisfaction among professional nurses in both the interpersonal and organisational communication contexts. The professional nurse respondents indicated a lack of personal feedback from operational managers as the main stumbling block to their communication effectiveness and ultimate communication satisfaction. In reply, the nurse managers and operational managers indicated that they experienced the communication skills of professional nurses as lacking or disrespectful. Additionally, the operational managers indicated that professional nurses found it problematic to initiate upward communication as they disliked downward-directed communication. However, the professional nurse stratum seemed to experience more positive horizontal (lateral) communication (Wagner 2013:129).

#### **1.4 RESEARCH QUESTIONS**

Research questions in quantitative studies should identify the population under investigation; identify the key variables and the possible relationships between the variables. Furthermore, the questions in a quantitative study suggest quantification, as the variables are usually measurable concepts (Polit & Beck 2010:154). The idea that defensive communication behaviour will result in poor interpersonal relationships, while supportive communication behaviour will result in better collaboration, if applied to the interpersonal and organisational communication context of professional nurses, led to the formulation of the following three *guiding* questions for this research:

#### **1.4.1 Research question 1**

What is the communication behaviour orientation of the respondents with regard to the six Gibbs' conceptual continuums?

#### **1.4.2 Research question 2**

What are the respondents' perceptions of the operational managers' communication behaviour orientation with regard to the six Gibbs' conceptual continuums?

#### **1.4.3 Research question 3**

How do specific factors, such as age, tenure (period in hospitals), gender, language, institution (public hospital) and type of unit/ward, influence the respondents' communication behaviour orientation and the respondents' perceptions of their operational managers' communication behaviour orientation with regard to the six Gibbs' conceptual continuums?

### **1.5 PURPOSE OF THE STUDY**

The purpose of the proposed study was to investigate the communication climate focus of professional nurses, pertaining to the communication behaviour orientation of professional nurses and their perception of the communication behaviour orientation of their operational managers and to and to develop and test a quantitative measurement instrument based on the Gibb's Defensive Communication Climate Paradigm (1961) to assess whether professional nurses view their communication as supportive (positive) or defensive (negative). With this purpose in mind, the researcher defined concepts and constructs (Chinn & Kramer 2011:165) from the Gibb's Defensive Communication Climate Paradigm (1961), developed a quantitative measuring instrument to assess the communication climate focus of professional nurses, and drew up guidelines for the development of a supportive communication climate in public hospitals.

### **1.6 RESEARCH OBJECTIVES**

Objectives were set for this study for both the developmental and testing phases.

### **1.6.1 Objectives during the development phase**

The objectives set for the developmental phase, based on a literature review and a Delphi panel technique conducted during the present study, were to

- define the construct or behaviour to be measured by means of a literature study
- formulate and refine concepts for the conceptual continuums within the Gibb's model
- develop a response format and instructions for respondents
- validate the refined concepts, response format and the instructions for respondents by means of expert input and sample congruent (pre-test) input
- incorporate the validated concepts, response format and instructions for respondents into an instrument.

### **1.6.2 Objectives during the testing phase**

The objectives set for the testing phase were to

- pre-test the newly developed instrument, using a sample congruent (pre-test) group
- statistically test the validity, reliability, sensitivity, objectivity and ethical acceptability of the instrument
- apply the newly developed instrument at three selected public hospitals in the Gauteng province
- draw up guidelines for the development of a supportive communication climate.

## **1.7 SIGNIFICANCE OF THE STUDY**

Nursing practice requires that professional nurses communicate (Anderson 2013) and act in a supportive manner during all interactions with other members of the health care team and the patient. This mandate compels professional nurses to continuously update their knowledge, skills, values and attitudes (Bruce, Klopper & Mellish 2011:343; Giri, Frankel, Tulenko, Puckett, Bailey & Ross 2012). The relationship that managers have with their employees is one of the most important variables affecting employee attitudes and engagement towards the workplace (MacLeod & Clarke 2012). Therefore, the significance of the study is discussed under the aspects of communication climate refocus, scientific body of knowledge and service excellence instrument.

### **1.7.1 Refocus on communication climate**

The nursing domain is an interpersonal and an inter-professional arena (Iedema 2007: 1-7) that demands supportive communication relationships (Wagner 2013:130-131). The Gibb's Defensive Communication Climate Paradigm (Gibb 1961), and especially the supportive focus, is important in meaningful communication. A communication focus that is defensive, on the contrary, represents a distancing from trust, support and collaboration and narrowly directs professional nurses. Refocusing attention on the communication climate is an important benefit emanating from this study. It is allied with different approaches to communication in areas such as the health and behavioural sciences (Du Plooy 2009:62-63).

The newly developed instrument could indicate a required refocus on the communication climate of the professional nurses to produce positive, satisfied and supportive communicators, instead of negative, dissatisfied and defensive personnel. This communication aspect is pivotal in a highly demanding nursing practice (Linsley 2012:61), and the responsibility lies with both operational managers and professional nurses to create a communication climate in which the patient as end-user will reap the benefit of positive, supportive communication (Wagner 2013:81). Support in the workplace has crucial implications for the proper functioning of the organisation, as it reduces turnover and absenteeism (Wild 2010:18) and increases the job satisfaction and commitment of employees (Ashar, Ghafoor, Munir & Hafeez 2013:79).

Implementation of the results and guidelines stemming from this newly constructed instrument (once it has been fully developed and tested) should provide direction and focus regarding the communication climate focus of professional nurses. Both operational nurses and professional nurses could, individually or in partnership, implement the instrument to assess the communicational focus of professional nurses in public hospitals on all six conceptual continuums.

### **1.7.2 Scientific body of knowledge**

Communication as an element of the nursing profession is needed to develop, maintain and add to a body of scientifically obtained knowledge.

This knowledge must be empirically grounded and free of speculation; therefore this study offers the basis for a scientifically formulated instrument to assess the communication climate focus of professional nurses. If public hospitals intend to start to refocus the communication climate of their professional nurses from defensive to supportive, the instrument could provide a means to assess the current climate in these hospitals. Additionally, the instrument may provide empirical referents or concepts (Chinn & Kramer 2008:196; Walker & Avant 2011:46), as baseline data, indicating how to develop a supportive communication climate.

Finally, the instrument could also indicate specific aspects of the six conceptual continuums that require change and remedial action. Guiding professional nurses towards more effective implementation of communication would provide direct benefits to both the operational managers and professional nurses and indirectly to their patients, through improvement in nursing practice and the quality of nursing care outputs.

### **1.7.3 Service excellence instrument**

This instrument, once finally refined, could be implemented as an instrument to assess and improve service excellence on individual, unit/departmental and organisational levels. The implementation of the instrument by the individual professional nurses and operational managers could involve professional nurses attending communication skills training programmes, and ultimately all nurses and patients reaping the benefits of such programmes. Such training is in line with the turnaround strategy launched by the Gauteng Department of Health in 2012 (GDoH 2012).

## **1.8 TERMINOLOGY**

The terminology applicable to this study is discussed below. Only a few of the key terminologies will be discussed in this section.

- **Assessing**

Assessing means evaluating or estimating the nature, ability or quality [of something] (*Webster Dictionary Online* (2013); *Oxford English Dictionary Online* (2017), henceforth in this dissertation *Merriam-Webster* and *Oxford English Dictionary*).

In this study the term *assessing* refers to the estimation of the nature, ability and quality of the existing communication climate in public hospitals by quantitatively investigating the nature of communication climates from the perspective of professional nurses in selected public hospitals using the Gibb's Defensive Communication Climate Paradigm (1961).

- **Communication**

Communication is a two-way process (Meyer, Naudé, Shangase & Van Niekerk 2009: 265-266), whereby a message is sent by a sender, through a channel, via a number of formats (or types) such as verbal and non-verbal formats (Soanes, Stevenson & Hawker 2009:289) to a receiver, who interprets and responds to it, taking into account various barriers (Bahri 2010:1067; Jootun & McGhee 2011:42; Muller et al 2011:151).

For the purposes of this study, communication will refer to all types of communication that travel vertically or horizontally in both directions between the National Department of Health, operational managers and nurses, utilising various communication channels.

- **Communication behaviour**

Communication resorts within the realm of the behavioural sciences such as psychology and sociology (Du Plooy 2009:62-63). *Behaviour* is "any observable, recordable and measurable movement, response, or act of an individual" (Keltner, Bostrom & McGuinness 2011:509), therefore *communication behaviour* refers to the specific theory which emphasises a direct relationship between positive-open-encouraging and negative-controlling-punitive communication behaviour as depicted in the paradigm. For the purposes of this study, the term *communication behaviour* will refer to the communication behaviour of professional nurses functioning within the communication climate of public hospitals.

- **Communication climate**

*Communication climate* refers to a psychological environment, defined as the general socio-emotional feeling (or degree of satisfaction) that is produced between the leader and the group; thus a psychological and emotional contract that arises within a work group (Trenholm 2011:185).

The communication climate relevant to this study refers to the communication climate of public hospitals in the Gauteng province in which professional nurses have to function and deliver patient care on a daily basis.

- **Delphi technique**

Delphi technique refers to a multistage approach of summarising data and developing a new research instrument. The classic Delphi technique encompasses the presentation of a research instrument to a panel of experts in a specific field of application, with the intention of seeking their opinion on a particular issue. The data is then summarised and a new instrument designed based on the data obtained from the first application. The instrument is then applied to the subjects who are asked to complete it. Repeat rounds may be carried out until consensus of opinion has been reached (Muller et al 2011:260; Watson, McKenna, Cowman & Keady 2008:252). During the developmental phase of this study a Delphi technique was used by presenting the literature review and subsequent draft questionnaire to a panel of experts prior to application of the questionnaire to research subjects.

- **Development**

Development refers to the process of developing or being developed, as well as a specified state of growth or advancement (*Merriam Webster, Oxford English Dictionary*). Development in this study refers to the process of developing a measuring instrument, as well as a specified state of growth or advancement of this developing instrument through the application of research techniques such as a literature review and the Delphi technique.

- **Measuring instrument**

Measuring instrument refers to a tool or device, for example a questionnaire, designed to measure a specific variable and used to collect and record data (Burns & Grove 2009:371; Polit & Beck 2012:191). In this study the term *measuring instrument* will refer to a quantitative instrument (questionnaire) that was developed based on the Gibb's Defensive Communication Climate Paradigm (1961) to assess the communication climate of professional nurses and develop guidelines towards supportive communication behaviour in public hospitals.

- **Operational manager**

The term *operational manager* refers to a designated leadership position. The role of operational manager is important in [health care] organisations, because they “ensure that operations run smoothly and that well-developed formulas are applied to staffing situations, economic decisions, and other daily operations” (Yoder-Wise 2014:40). For the purposes of this study the term *operational manager* will refer to nurses registered under section 31 of the Nursing Act, 33 of 2005 (South Africa 2005) functioning at managerial levels (Unit Managers) within public hospitals in Gauteng.

- **Professional Nurse**

The concept *professional nurse* refers to a person who is registered or enrolled under section 31 of the Nursing Act, 33 of 2005 (South Africa 2005) and pertains to “a person registered as such”. For the purposes of this study the term *professional nurse* will refer to nurses registered under the specific section of the Act as mentioned above, functioning at operational levels within all wards/units and departments in public hospitals in the Gauteng province.

- **Public Hospital**

Public hospitals are health care services governed and financed by the South African government. For the purposes of this study the concept ‘public health care service’ refers to all non-private, governmentally subsidised hospitals such as community-, district- and academic hospitals in Gauteng.

## **1.9 FOUNDATION OF THE STUDY**

The foundation of the study will be discussed according to the philosophical paradigm, assumptions and research questions underlying the study.

### **1.9.1 Philosophical paradigm**

Polit and Beck (2008:14) define a paradigm as the general worldview that an individual holds on the complexities of the real world.



The most common philosophical paradigms are the constructivist; positivist; post-positivist, interpretivist, critical enquiry, post-modernist and post-structuralism paradigms (Watson et al 2008:15). This study was approached from a positivistic theoretical perspective. A positivistic paradigm will approach a research problem from a perspective in which it is believed that there is truth to be found. It is the aim of the researcher to find, study and report such truth (Watson et al 2008:15). This is normally achieved by testing a theory by means of quantitative studies and inferential testing, in order to draw conclusions that can be generalised to the stated population. Theoretically, this study aims to further explore a communicative context that has been minimally studied. The nursing profession demands continuous interaction between all of its members. Therefore nursing practice heavily involves communication and can serve as another practical field for the application of communication theory.

At a practical level, this study highlights significant implications that can be applied directly to nursing practice and also to nursing education, which has a bearing on how nurses are taught to communicate. Adopting important communicative behaviour can assist professional nurses to avoid defensive communication during interpersonal interactions, leading to more effective and supportive communication.

### **1.9.2 Assumptions**

Burns and Grove (2009:40), Du Plooy (2009:56-57) and Polit and Beck (2012:720) define assumptions as basic principles that are accepted as real truth on the basis of logic or reason, without proof or verification. The assumptions applicable to this study, formulated with reference to the four areas of commitment of any research undertaking as proposed by Kuhn (1990, in Brink, Van der Walt & Van Rensburg 2012:24-25), are assumptions regarding:

- Ontological commitments
- Methodological-technical commitments
- Anthropological commitments
- Theoretic-conceptual commitments

#### **1.9.2.1 *Ontological commitments***

*Ontological* assumptions describe the nature and composition of a phenomenon; that is, its characteristics, constituent parts and their mutual relationships (Polit & Beck 2012:11).

The word ontological is derived through Latin from the Greek words *ont-* and *logos*. *Ont-* means being or real existence (the given or essence of something) and the essence or real existence is sought in the abstract; for example, the essence of communication. One meaning of *logos* is study or area of thought. Thus the term *ontology* refers to the study of the real or reality. Pertaining to the present research the term *ontological* also equates to the term *empirical*, the theory that all concepts are based on experience. As ontological assumptions are assumptions concerning the essence of the research object (Polit & Beck 2012:11), it is firstly assumed that the concepts in the six conceptual continuums of the Gibb's model describe an aspect of the reality of nursing and nursing communication, and secondly that the Gibb's model captures central concepts in their most essential and general form. So nurses can provide objective information regarding the six conceptual continuums.

### **1.9.2.2 Methodological-technical commitments**

Brink et al (2012:24-25) and Polit and Beck (2012:12-14) define methodological-technical commitments as the criteria of the methodology and instrument by which a scientifically valid view may be realised. In this regard, it is first assumed that an adequate foundation will be set by using a quantitative approach to construct and test a theoretically based instrument, and secondly that appropriate quantitative data from respondents would be elicited through the use of questionnaire(s) containing closed-ended questions. Thirdly it is assumed that when presented with statements, the language contained in the questionnaire has the same meaning to all respondents and they can recognise the applicability of these statements to their own situations, and fourthly it is assumed that the use of inferential statistics will provide for an adequate scientific foundation to ensure validity and reliability during the testing of the instrument.

### **1.9.2.3 Anthropological commitments**

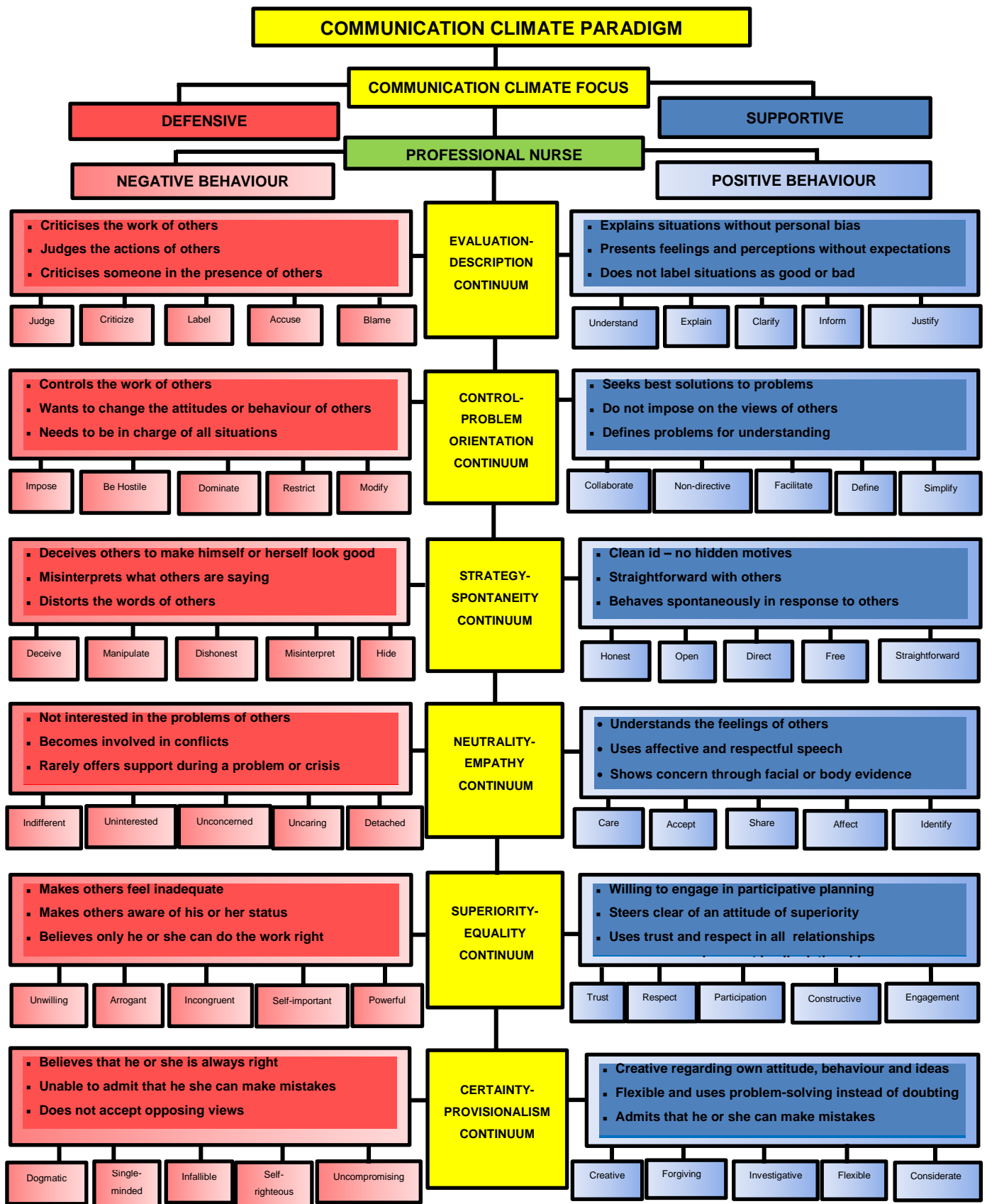
*Anthropological* assumptions define the nature of human participation in communication and the nature of the relationships between communicating human beings. The word anthropological is a combination of the Greek word *anthrōpos* and the Latin word *logos*. The word *anthrōpos* means man or humankind or humanity and *logos* means study. Thus the term *anthropology* refers to the study of humankind in all its aspects.

The most important consequence of the ontological and anthropological assumptions of a theoretical approach is that they determine what may be investigated by the approach in question. The two categories of assumptions applicable to this study are interweaved and inter-dependent. By offering a description of the communication phenomenon and the human beings involved in it, the assumptions of a theoretical approach pinpoint those aspects that are, for the purposes of an approach, fundamental to communication understanding. Problems are conceptualised (delimited) within relevant aspect ranges, while other aspects of the phenomenon are disregarded (Brink et al 2012:24-25).

#### **1.9.2.4      *Theoretical-conceptual commitments***

Theoretical-conceptual commitments are commitments to the accuracy or truth of the theories and laws of the particular paradigm (Brink et al 2012:24-25). This study was conducted within a conceptual framework: the Gibb's Defensive Communication Climate Paradigm (1961) (see Figure 1.1).

This conceptual framework comprises six bipolar conceptual continuums (constructs) and a Communication Climate Focus. The six bipolar conceptual continuums include: Evaluation-Description, Control-Problem Orientation, Strategy-Spontaneity, Neutrality-Empathy, Superiority-Equality and Certainty-Provisionalism, forming a communication focus due to the defensive versus supportive nature of the continuums. The two quantitative (positivist) theoretic-conceptual commitments stated are firstly that the six conceptual continuums, contained in the Gibb's Defensive Communication Climate Paradigm (1961), formed an applicable conceptual foundation and model for the study, and secondly that the concepts making up the Gibb's model provided a scientific base that enables the researcher to assess the communication climate of professional nurses in public hospitals.



**FIGURE 1.1: SCHEMATIC PRESENTATION OF GIBB'S DEFENSIVE COMMUNICATION CLIMATE PARADIGM**

**Source:** Adapted from Gibb, JR. 1961. Defensive Communication. *Journal of Communication* (11):141-148 and Costigan, JI & Schmeidler, MA.1984. Exploring supportive and defensive communication climates.

The researcher views the conceptual framework as a suitable foundation for this study. A more detailed description is provided in Chapter 3.

The Communication Climate Focus accentuates positive and negative communication behaviour. Forward et al (2011:14-15) provide a positive item example from the Evaluation-Description Continuum: "I like to compliment the work of my colleagues" and a negative item example: "I like to criticize the work of my colleagues". The first example represents a supportive orientation and the second example a more defensive orientation.

To assess the Communication Climate Focus in this study, it was necessary for the researcher to assess the communication behaviour of the individual (professional nurse) and the perception of that individual on the communication behaviour of others (specifically operational managers), within a specific communication context (public hospitals). The Defensive-Supportive Communication Climate Continuum ranges from a defensive focus (orientation), with negative communication behaviour, to a supportive focus (orientation), with positive communication behaviour.

The Gibb's model has been applied to various other fields of study, including studies on education by Myers (1995) and Myers and Rocca (2001); a study on cultural diversity by Schaubert (2001); and studies on organisational effectiveness by Cross (1978) and Larsen and Folgero (1993). Czech and Forward (2010; 2013) used Gibb's model to study the underlying dimensionality of a primary measuring instrument, based on the Gibb's model, developed by Costigan and Schmeidler (1984). Owing to dimensionality problems, this instrument was not used for the present study.

In the present study, an in-depth literature review, incorporating all the concepts contained in the conceptual framework and recent, relevant research studies, was undertaken, reconceptualisation was done and a new assessment instrument developed.

## **1.10 RESEARCH DESIGN AND METHODOLOGY**

A quantitative approach was followed, using a non-experimental research design to formulate and test a measuring instrument (questionnaire) designed during this study.

The design selected for the study consisted of a *developmental* and *testing phase*, firstly to facilitate the development, validation or evaluation of research instruments and techniques (Burns & Grove 2003:27-28, 494) and secondly to adhere to the assumptions underlying this research (see section 1.9.2). A structured questionnaire (Burns & Grove 2009:406-409), comprising closed-ended items (in a Semantic Differential Scale format) and questions regarding the biographical details of respondents, were utilised as a research technique. During the developmental phase national and international literature (see chapters 2 and 3), and the Delphi technique were employed to develop the measuring instrument (Burns & Grove 2009:414-415; Watson et al 2008: 252-257).

### **1.10.1 Sampling design**

A simple, random sampling design was utilised during the developmental phase (for the pre-testing of the instrument) as well as during the testing phase (De Vos, Strydom, Fouché & Delpont 2011:226, 228, 274; Polit & Beck 2012:744). Random sampling was chosen in order to maximise randomisation, representativeness, homogeneity, validity and reliability of the instrument (Burns & Grove 2009:379-380; Polit & Beck 2010:243, 376). In this study homogeneity is important as a “uniform structure or composition [is required] throughout” (Martin, Nakayama, Van Rheede van Oudtshoorn & Schutte 2013:12).

During both phases, the target population consisted of all the professional nurses in public hospitals in the Gauteng province. The accessible population consisted of professional nurses with different periods of service in three public hospitals in Gauteng (Burns & Grove 2009:343-344 & 724; Polit & Beck 2012:274). The three public hospitals were selected on the basis of their approximately equal size and a fairly similar number of professional nurses functioning in each participating hospital.

### **1.10.2 Pre-testing the instrument**

To detect and correct any problems that might be encountered during the research study, the instrument was pre-tested (Polit & Beck 2010:302-303). The instrument was scrutinised for problems with regard to clarity of instructions, relevance, usability and completion time, in order to refine and introduce modifications where required and to determine its reliability and validity (De Vos et al 2011:147-152; Polit & Beck 2012:741).

To pre-test the instrument (the draft Semantic Differential Scale), a simple, random sample of 30 respondents (all professional nurses), was selected as target group. The respondents participating in the pre-testing of the instrument were excluded from the empirical study. The sampling procedure is discussed in detail in Chapter 5.

### **1.10.3 Data collection methods**

Data was collected during the *developmental phase* by means of a literature review, the use of a discussion group of experts (the Delphi technique) and application of the data collection instrument, a Semantic Differential Scale (SDS), as discussed in Chapter 5. Data was collected during the *testing phase* by means of the newly developed instrument. The testing phase involved testing the reliability and validity of the instrument by administering it to respondents (professional nurses) in three public hospitals in Gauteng. The data collection method is explained in more detail in Chapter 4.

### **1.10.4 Data analysis**

Data was analysed during the developmental phase (pre-testing of the measuring instrument) by means of reliability tests such as the Cronbach's Alpha and kappa (interrater agreement) tests. Data was analysed during the testing phase by means of descriptive statistics such as tables, measures of central tendency and standard deviation.

Inferential statistics such as the one-way ANOVA, F-tests, t-tests and Tukey-Kramer tests were also utilised (Burns & Grove 2009:479, 505; Polit & Beck 2012:421, 426-428). The Statistical Analysis System (SAS JMP version 12.0) was used to analyse the data, with the assistance of a statistician.

### **1.10.5 Reliability and validity during data collection and analysis**

In any quantitative research study two important variables: reliability and validity, are important and have to be taken into consideration. *Reliability* refers to the consistency, constancy or dependability, accuracy and precision with which an instrument measures the attributes it is designed to measure (Burns & Grove 2009:377, 719; De Vos et al 2011:177; Polit & Beck 2012:741).

*Validity*, on the other hand, refers to the relevance of a measure (Muller 2014:418). A valid instrument measures the concepts or constructs it claims to measure (Babbie 2007:146; De Vos et al 2011:173; Polit & Beck 2012:745).

During the developmental phase an attempt was made to maximise the reliability and validity of the research instrument during data collection by reviewing relevant research studies and focusing on concepts contained in the conceptual framework. Additionally, the Delphi technique was employed and a panel of experts consulted. The items in the instrument were scrutinised to identify supportive and defensive communication items; thereby enhancing face validity. Content analysis was applied to enhance the content validity of the scale and the instructions for the respondents. During data analysis, the reliability of the six constructs (Gibb's conceptual continuums) was enhanced by applying Cronbach's Alpha reliability analysis as well as kappa (inter-rater agreement) tests (see Chapter 5).

During the testing phase the reliability of the measuring instrument was tested by employing tests such as the coefficient alpha (Cronbach's Alpha), analysis of variance (One-way Analysis of Variance, ANOVA) and the Tukey's test (Burns & Grove 2009:505 & 377-380; Polit & Beck 2012:428). Regarding the types of validity: face, content, construct and criterion validity were established for the study (see Chapter 6). Content validity of the constructs for the six conceptual continuums was established during the first phase of the study, thus enhancing validity and reliability (Muller 2014:418; Polit & Beck 2012:337;).

The sequence of the research methodology is depicted as a schematic representation in Table 1.1. Chapter 4 presents a detailed description of all the aspects relating to the research methodology.



**TABLE 1.1: SCHEMATIC REPRESENTATION OF THE RESEARCH METHODOLOGY**

| Delphi  | Research Objectives   | Data Collection     | Data Analysis  | Respondent/ Sample  | Strategies for Validity and Reliability   |
|---------|---|---------------------|--|---|---|
| ROUND 1 | <b>Developmental phase</b><br>- Formulation of concepts for the six conceptual continuums (constructs), namely: Evaluative-Descriptive, Control-Problem Orientation, Strategy-Spontaneity, Neutrality-Empathy, Superiority-Equality and Certainty-Provisionalism. | - Literature review | - Content analysis according to Polit and Beck (2012:723):<br>= Selection of the unit of contents to be analysed<br>= Development of a category system for classifying the unit of content | - National literature: books, articles, research studies<br>- International literature: books, articles, research studies   | - Content analysis according to Polit and Beck (2012:723)   |
|         | - Refinement of the concepts for the six conceptual continuums.   | - Literature review | - Content analysis (Polit and Beck 2012:723):<br>= Selection of the unit of contents to be analysed<br>= Development of a category system for classifying the unit of content              | - National literature: books, articles, research studies<br>- International literature: books, articles, research studies   | - Relevant research articles and studies<br>- Content analysis  |
|         | - Selection of a scaling technique and development of a response format and instructions for respondents  | - Literature review | - Content analysis according to Polit and Beck (2012:723):<br>= Selection of the unit of contents to be analysed<br>= Development of a category system for classifying the unit of content | - National literature: books, articles, research studies<br>- International literature: books, articles, research studies   | - Relevant research articles and studies<br>- Content analysis  |
| ROUND 2 | <b>Pre-testing</b><br>- Validation of the refined concepts for the six conceptual continuums, the scaling technique, response format and the instructions for the respondents   | - Draft instrument  | - Statistical calculations<br>= Descriptive strategies<br>- Computer programs<br>= Microsoft Word<br>= Excel   | - Sampling Method: simple, random sample<br>- Sample: professional nurses from one of the participating hospitals in the Gauteng province.<br>- A simple, random sample of 30 professional nurses was then taken to pre-test the instrument using the draft Semantic Differential Scale (SDS) | - Strategies for ensuring validity and reliability:<br>= Pre-test study<br>= Statistician<br>= Relevant, descriptive statistical calculations<br>- Descriptive strategies<br>= Content analysis<br>= Tables<br>= Median<br>= Mean |

**TABLE 1.1: Continued**

| Delphi  | Research Objectives   | Data Collection  | Data Analysis  | Respondent/ Sample  | Strategies for Validity and Reliability  |
|---------|---|--|--|---|--|
| ROUND 3 | <p><b>Testing phase</b></p> <ul style="list-style-type: none"> <li>- Test the newly developed instrument (SDS) for validity, reliability, sensitivity, objectivity and ethical acceptability of the instrument by implementation of the instrument at three public hospitals in order to assess the six conceptual continuums from the perspective of the professional nurse</li> <li>- Draw up guidelines with regard to the development of a supportive communication climate in public hospitals.</li> </ul> | <ul style="list-style-type: none"> <li>- Newly developed instrument</li> </ul> | <ul style="list-style-type: none"> <li>- Statistical calculations:</li> <li>= Descriptive strategies</li> <li>= Inferential strategies</li> <li>- Computer programs:</li> <li>= Microsoft Word</li> <li>= Excel</li> </ul> | <ul style="list-style-type: none"> <li>- Sampling Method: simple, random sample</li> <li>- Sample: professional nurses from three of the participating hospitals in the Gauteng province were utilised.</li> <li>- A simple, random sample was taken as follows:</li> <li>= Hospital A – 90 professional nurses</li> <li>= Hospital B – 90 professional nurses</li> <li>= Hospital C – 90 professional nurses</li> <li>- Thus a total of 270 professional nurses to test the instrument using the improved Semantic Differential Scale</li> </ul> | <ul style="list-style-type: none"> <li>- Strategies for ensuring validity and reliability:</li> <li>= Pre-test study</li> <li>= Statistician</li> <li>= Relevant, descriptive and inferential statistical calculations</li> <li>- Descriptive strategies</li> <li>= Content analysis</li> <li>= Tables</li> <li>= Median</li> <li>= Mean</li> <li>= Range</li> <li>= Standard deviation</li> <li>- Inferential strategies:</li> <li>= Cronbach's Alpha</li> <li>= ANOVA</li> <li>= Tukey-Kramer test</li> <li>= t-test</li> <li>= F-test</li> <li>= Effect-test</li> </ul> |

### 1.11 ETHICAL CONSIDERATIONS

During the testing phase the ethical issues that are important include acceptability of the instrument, consent and guarantee of privacy. The latter issue entails the principles of anonymity and confidentiality.

*Ethical acceptability* refers to the adherence by the researcher to the professional, legal and social obligations to the respondents in order to protect the rights of the respondents. An example of ethical acceptability is ensuring that the participation by the respondent is voluntary (Du Plooy 2009:53; Polit & Beck 2012:154). Therefore the ethical acceptability might have enhanced the validity and reliability of the study.

*Anonymity* is a promise that even the researcher will not be able to tell which responses came from which respondent (Bell 2007:48). Informed consent was obtained by means of a separate document from the questionnaire, and was handled separately throughout the study, ensuring the anonymity of respondents.

*Confidentiality* refers to the protection of participants in a study, and not linking or publicly divulging their individual identities in relation to the information they provided (Polit & Beck 2008:750). The information should not be divulged or made available to any other person. This responsibility was adhered to, and limited only as far as positive identification of the subjects was concerned.

### **1.12 SCOPE OF THE STUDY**

The aim of this study was to assess the communication climate focus of professional nurses in selected public hospitals through the development of a measuring instrument. The context within which this study was conducted was the South African public health care context and specifically public hospitals in the Gauteng province. This study is limited to only one province and three public hospitals; however, the developed measuring instrument and the resulting guidelines may also be used in other provinces to assess the communication climate focus of professional nurses in other public and private hospitals and health care settings.

### **1.13 LIMITATIONS OF THE STUDY**

Limitations pertaining to this study include the possibility of the Hawthorne effect, issues relating to the data collection and analysis and the focus of the respondents. Brink et al (2012:164) and Polit and Beck (2012:729) define the *Hawthorne* effect as the effect on the dependent variable caused by respondents being aware that they are under study. It is assumed that respondents would have completed the questionnaire honestly and with integrity, but they might have answered the questions in a manner which did not reflect how they really felt about, or perceived it. With regard to the internal and external foci of the respondents, they might tend to focus more on the behaviour of others than on their own behaviour, providing a skewed view of the real communication climate.

## **1.14 ORGANISATION OF THE RESEARCH REPORT**

The research report consists of eight chapters set out in the following way:

### **Chapter 1: Orientation to the study**

This chapter provided an orientation to the study. It discusses the background to the research problem, problem statement, research questions, aim of the study, objectives, assumptions, significance of the study, terminology, conceptual framework, research methodology, ethical considerations, limitations, and format of the research report.

### **Chapter 2: Literature review**

Chapter 2 presents a literature review with regard to the communication climate.

### **Chapter 3: Theoretical framework**

Chapter 3 deals with the Gibb's Defensive Communication Climate model (1961)

### **Chapter 4: Research design and methodology**

In Chapter 4 the research design, reliability and validity are discussed.

### **Chapter 5: Development and pre-testing of the measuring instrument**

Chapter 5 outlines the results of the developmental phase of the study.

### **Chapter 6: Testing of the measuring instrument and results**

Chapter 6 presents a discussion of the results of the testing phase of the study, pertaining to the testing of the instrument and research questions.

### **Chapter 7: Development and validation of guidelines**

Chapter 7 describes the guidelines that are drawn up with regard to the development of a supportive communication climate in public hospitals.

### **Chapter 8: Conclusions, limitations and recommendations**

The final chapter presents a summary of the study, the conclusions, implications and limitations of the study, and the attainment of the research objectives.

## 1.15 CONCLUSION

Nursing is a profession that demands constant collaboration, trust and supportiveness among all nurses. This view requires professional nurses, as members of a multi-professional team, to communicate effectively on a continuous basis (Linsley 2012:61). The communication climate in which professional nurses have to function should reflect supportiveness. However, it does seem as though the current communication climates in public hospitals are marked by defensive behaviour such as indifference and incivility. Consequently, it is necessary to assess the communication climate of public hospitals in order to identify the supportiveness thereof and suggest guidelines towards a communication climate refocus. The supportive communication climate pole of Gibb's Defensive Communication Climate Paradigm (1961) will provide a platform for this refocus of the communication climate.

Chapter 1 orientated the reader to the study by describing the problem formulation, the significance of the study, the conceptual framework, the research methodology, terminology and the outline of the research report.

In the next chapter, literature supporting the Gibb's Defensive Communication Climate Paradigm (1961) will be discussed with regard to the definition of a communication climate, and the components, characteristics, dimensions, types, patterns, factors and barriers influencing a communication climate. Related research studies were also discussed in order to supply background knowledge and clarification about the problem under study.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

Chapter 1 acted as an orientation to this study, by discussing the background to the problem, the problem statement, research question, purpose of the study, objectives, assumptions, significance of the study, conceptual framework, research methodology, terminology and the outline of the research report. In this chapter, literature on the communication climate supporting the Gibb's Paradigm (1961) will be discussed, according to a definition as well as its components, characteristics, dimensions, types, patterns and influencing factors and barriers.

#### 2.2 DEFINITION OF COMMUNICATION CLIMATE

The construct *communication climate* consists of two concepts, namely *communication* and *climate*. These two concepts will be defined and discussed in more detail in the following sections.

*Communication* is a two-way process (Meyer et al 2009: 265-266), whereby messages are transferred between a sender and a receiver via a number of formats, such as verbal and non-verbal formats (Soanes et al 2009:289), through a selected channel. The receiver interprets the message and responds, considering various barriers such as noise (Bahri 2010:1067; Jootun & McGhee 2011:42). The concept *climate* is defined as the "usual or most widespread mood or condition in a place" (*Merriam-Webster* 2013), therefore in this context, a "combination of attitudes, feelings and behaviours, which exists independently of the perceptions and understandings of individual members" within a group and a place (Buchanan & Huczynski 2010:589). *Communication climate*, as a combination of the two concepts, refers to a psychological environment, defined as the general socio-emotional feeling (or degree of satisfaction) that is produced between the leader and the group; thus a psychological and emotional contract that arises within a work group (Trenholm 2011:185).

This contract is influenced by the relationships of staff with managers, manager relationships with staff, organisational integration, horizontal and informal communication, media quality, the organisational perspective, and personal feedback (Battey 2010:13; Downs & Hazen 1977:64; Tsai & Chuang 2009:826;). These influencing factors will be explored in more detail later in the discussion of the term *communication climate*.

Additionally, the term communication climate refers to the perceptions staff hold with regard to the quality of the mutual relationships and communication (events, activities and behaviour) within the internal environment of an organisation (Hemmert 2009:14). Thus, communication climate represents the way in which communications are conducted within organisational environments, on both the organisational level and the interpersonal level (Arif, Zubair & Manzoor 2012:65). The nature of the communication climate in an organisation, may fluctuate between defensive (negative and controlling) or supportive (positive and open), depending on the climate and the experience of the people in that climate (Trenholm 2011:185).

Utilising the concept communication climate as developed by Gibb (1961), and defined by Trenholm (2011), the communication climate (in public hospitals) is a psychological environment with a general socio-emotional feeling that is produced between leaders (such as operational managers) and the group (such as professional nurses) in a specific work environment (such as a nursing unit).

### **2.3 COMPONENTS OF A COMMUNICATION CLIMATE**

Two main components form the communication climate of an organisation, namely, *organisational climate* and *organisational communication*. The kinds of communication behaviour within these components lead to the development of psychological environments (climates) in organisations. Rytönen (2003) cited in Walt (2006:34) found a link and a particular circular relationship between the two components. However, it is noteworthy that it appeared from the literature review of the concept communication climate as though most authors spend very little attention on the actual concept of communication climate, but concentrate more on the concept of organisational climate.

### 2.3.1 Organisational climate

The *organisational climate* component has been found to be a major influence on the ways in which organisation members behave and communicate (Swanepoel & Slabbert 2012:461); it plays a very important role in the description of the term communication climate. The concept of organisational climate consists of two parts: *organisation* and *climate*.

*Organisations* “pervade our physical, social, cultural, political and economic environment...” (Buchanan & Huczynski 2010:8-9), and are viewed as “living systems” (Le Roux 2008:264). The term *organisation* is rooted in the concept *organising*, which refers to “the process of creating a formal organisational structure” for an organisation enabling the workers in such an organisation “to work effectively and harmoniously towards its vision, mission and goals” (Jooste 2009:52). Organisations are social arrangements (groups of people interacting with each other) to achieve controlled performance (for the survival of the organisation) in the pursuit of collective goals (common membership implying shared objectives). They can be defined as organised groups of people with a particular purpose, such as business or government departments (Soanes et al 2009:1008).

Organisations are divided and subdivided into units or departments which are assigned tasks aimed at achieving organisational goals. The division of these tasks in the organisation (also called the *organisational structure*) is indicative of the “basic framework of formal relationships” among staff in an organisation such as a public hospital (Jooste 2009:52). Structures provide clarity in terms of communication, as to who reports to whom (Mokoka 2007:131). In this study, the term *organisations* will refer to public hospitals in South Africa, resorting under the National Department of Health. The concept pertains to all levels, divisions and units therein, where professional nurses are working within the lines of authority, span of control and assigned responsibilities as stipulated by the micro organogram of the specific public hospital or the macro organogram of the National Department of Health. The organisational component includes the public hospital climate and communication.



The concept of *climate*, as stated earlier, is the most prevalent mood in a place. In context, Jooste (2009:368) states that “the climate in an organisation describes the present trend of opinion, attitudes and feelings”. She explains that “different parts of an organisation may have different climates”, due to staff working under diverse conditions in different sections of an organisation.

*Organisational climate* thus refers to the collective, current impressions, expectations, and sentiments of work units (Mabona 2013:36-37), including those aspects of an organisation’s environment that are consciously perceived by the members of the organisation. It affects employee-to-manager and employee-to-employee relationships and represents the employees’ subjective impression or perception in an organisation and is often described in terms such as: *formal, relaxed, defensive, accepting or trusting* (Bezuidenhout 2014a:149).

Organisational climates have the potential to vary on a continuum from one polar extreme to the other and therefore must not be labelled as simply bipolar. The degree of supportiveness is the crucial element in a communication climate (Rytkönen 2003:28). It is created by individual relationships and feelings and is often evaluated in terms of productivity, absenteeism, complaints, grievances and staff turnover (Jooste 2009:285; Muller et al 2011:29). A high incidence of any of these variables will indicate problems in the climate of an organisation, as they monitor the output of an organisation. Characteristics of an organisational climate include its ability to develop and change quickly, be independent of a known past, operate on a level of attitudes and values, harbour the members’ unique characteristics, respond to short-term changes and be more accessible to awareness and behaviour (Jooste 2009:368).

Using a deductive approach, the researcher argues that the organisational climate of South African public hospitals consists of three main climates: the national, institutional and interpersonal climates. These climates influence one another and are interrelated; however the institutional climate is directly influenced by the national climate while the interpersonal climate is indirectly influenced by both the national and institutional climates (Johnson-Laird 2010:8; Rips 2008:187).

### **2.3.1.1 National climate**

The national climate includes the National Department of Health, provincial (such as the Gauteng Department of Health) and local (municipal) authorities, which provide the vision, mission and priorities of their subsidiary organisations (such as public hospitals). The National Department of Health is a government-owned institution (Moodley 2011: 17) that oversees the functions of all the health care services nationally and provincially. Therefore all legislation and policies stemming from this entity will be applicable to all health services in all the nine provinces of South Africa.

### **2.3.1.2 Institutional (public hospital) climate**

Public hospitals are health services regulated by the government of a country and are financed through its tax system (Chida 2008:59). For the purposes of this study the concept *public hospital* refers to all non-private, governmentally subsidised hospitals such as community-, district- and academic hospitals in the Gauteng province of South Africa. The term *hospital* originates from the Latin term *hospes*, which means *stranger*, *foreigner* or *guest*, implying a *place of hospitality*. A hospital is also defined as “a health care institution providing [organised], intramural patient treatment by specialised [medical and other professional] staff and equipment, [sometimes] providing for in-patient care and longer-term patient stays” (Van Rensburg 2012:535).

Hospitals display no uniform character in respect of structure and functions and vary widely in terms of *size* (e.g. the number of beds or patients that can be accommodated); *objectives* (e.g. patient care, training and research); *care programmes* (i.e. general or specialised); *models of patient care* (i.e. custodial or classical); *type of illness or patients* (e.g. psychiatric or tuberculosis); *controlling body* (e.g. state, semi-state or private); *terms of patient accommodation* (e.g. acute, day or chronic patients); *social structure* (e.g. post structure, job division, hierarchy of power, control or management of informal groups) (Van Rensburg 2012:535).

Historically, prior to 1994, South African public hospitals were established along racial lines (Chida 2008:8) into hospitals for predominantly white patients or black patients. Stringent segregating health policies caused the managerial structures of public health services to have an organogram representing white staff only.

Consequently, the communication climate was dominated by a particular group, and the communication climate tended to consist of groups of white communicators who were “superior” to the “inferior” groups of black communicators.

The languages of choice in these public hospitals were Afrikaans and English. Mda (2004:4) is of the opinion that the apartheid system strove towards eradicating all vernacular languages from society and in the health care system their use was limited to so-called “black hospitals”; thus, it is understandable that communication travelled in a one-way direction in the “white hospitals”. After 1994, a more representative public health care service emerged, with management structures more representative of the South African population (Govender 2009:104; Moodley 2011:3).

Health services, like other South African spheres, also faced transformation after 1994. The main transformation was the desegregation of all public health services, to create a truly representative service for all the citizens of the country. Consequently, these changes necessitated a change in communication as well. However, although 11 official languages were acknowledged by the new Constitution of South Africa (South Africa 1996), English was adopted in all public services, including public hospitals, as the only official language (Lutakwa 2012:37; Mda 2004:18-19; Molepo 2008:193).

### **2.3.1.3 *Interpersonal (individualistic) climate***

The interpersonal climate in an organisation refers to the shared feeling that individuals related to the organisation have towards the organisation, its management, professionals and each other. In public hospitals the interpersonal climate relates to the interpersonal atmosphere or mood that pervades all individuals in the hospital.

#### **2.3.1.3.1 *Individuals in the interpersonal climate of public hospitals***

The interpersonal climate of public hospitals includes various individuals, such as the management, staff, patients and visitors. Management includes hospital managers (Chief Executive Officers), and nursing managers (such as Deputy Directors, Assistant Directors and Operational Managers). The staff component includes medical staff, related medical staff, nursing staff and ancillary staff.

The medical staff, related medical staff and nursing staff form a multi-professional team of professionals. The term *multi-professional team* refers, according to Stone (2009:2), to individuals from different professions who are involved in a given activity and who may share a common goal.

In a public hospital context the multi-professional team may consist of professionals such as consultants, physicians, physiotherapists, pharmacists, radiographers and nurses. The nursing staff, *per se*, consists of Professional Nurses, Enrolled Nurses and Enrolled Nursing Assistants. The ancillary staff component consists of non-medical professionals such as porters, administrators, cleaners and security personnel. In public hospitals, patients include both in-hospital patients and out-patients. The visitor communicator component consists of patient visitors and visitors to the hospitals.

#### *2.3.1.3.2 Nature of the interpersonal climate in public hospitals*

Although a new public health care sector, with more transparent communication systems and structures, was established in South Africa (African National Congress 1994; Koen 2010:3), much of the pre-1994 defensive communication behaviour persisted. This statement is corroborated by Kooker et al (2007); Landman et al (2001); Von Holdt and Maseramule (2005); Von Holdt and Murphy (2006) and Wagner (2013). Their studies found disharmonious practice-communication integration and communication styles to be factors hampering specifically nurse-nurse communication interactions.

In 2001 (seven years after democracy in South Africa), strict regulations and a code of conduct (South Africa 2001) had to be adopted, as a measure of control aimed at improving the conditions for users of public hospitals in Gauteng, because none of the envisaged structures functioned properly, resulting in restriction of communication flow. Public hospitals were labelled as some of the most unfriendly entities in this province (Arries & Newman 2008:45-46, 50; Chida 2008:52; Ireland 2014). Therefore the National Department of Health, regulating public hospitals, enacted strict measures in order to redress the situation (Motsoaledi 2012). The National Department of Health allows public hospitals to operate, controls their allocated budgets (Chida 2008:59) and can rightfully require staff to function cooperatively.

Defensive climates are experienced as closed and supportive climates as open. In the practical setting (such as a public hospital and its nursing practice settings) the interpersonal climate contains elements from both extremes. Notwithstanding the formality of the domain, it would be expected that the interpersonal climate of a nursing domain should be more supportive (reflective of behaviour such as understanding and collaboration) than defensive (reflective of behaviour such as judgement and dogmatism). Although there is a need for collaboration (Dingley, Daugherty, Derieg & Persing 2008; Nkosi 2011:2), all of the aspects of supportive climate behaviour should be apparent. However, a worrying phenomenon in the current interpersonal climate of public hospitals is the progressively negative attitudes of staff, apparent in irreverent or resistant behaviour (Louw & Edwards 2011:746). Staff seem to experience and accept this negativity as part of their everyday functioning (Khalil 2009:438, 441), indicating a problem in the perceptions of staff with regard to their communication behaviour.

### **2.3.2 Organisational communication**

The *organisational communication* component of a communication climate relates to the internal communication of an organisation. The prior definition of an *organisation* as a social arrangement for achieving controlled performance in the pursuit of collective goals (Buchanan & Huczynski 2010:9), and of *communication* as a two-way process whereby a sender sends a message via a channel to a receiver, (using different formats and experiencing different barriers) within the context of an organisation (Keyton 2011:10) are also applicable to a study of organisational communication. It is a “study of how social collective organisations are produced and affected by communication; and a system, identified by purpose, operational procedures and structure” (Jones 2006:4). Organisational communication refers to all types of formal communication travelling horizontally or vertically through all structures, levels, divisions and units of organisations (Steinberg 2007:295), for different purposes, via operational procedures and structures. Organisational climates are created by organisational behaviour; therefore they are linked to organisational communication. The same entities that are present in the organisational climate component are also present in the organisational communication component of the communication climate of public hospitals. Therefore the organisational climate component will be discussed under the headings: national, institutional and interpersonal communication.

### **2.3.2.1 The National Department of Health and provincial (Gauteng Department of Health) communication**

Muller et al (2011:150) postulate that “communication management in the healthcare organisation is first and foremost influenced by national, provincial and local legislative frameworks and subsequent formal external communication network”. In this regard legislation pertaining to the access of information is also applicable. Communication from the National Department of Health and Gauteng Department of Health is disseminated down to organisations (such as public hospitals) through government regulation, ethical codes, such as the *Code of Conduct for the Public Service* (South Africa 2001), and policies and goals.

#### **2.3.2.1.1 Government regulations**

Government regulations (rules) describe what may or may not be done under certain circumstances and form part of the imposed external guidelines that are passed down from various sources of authority (Booyens 2008:67), such as legislation in the form of acts and/or regulations.

Governmental regulations permit no variation and must be strictly adhered to in order to avoid disciplinary action. In public health care services, rules and regulations are passed down from governmental level to the National Department of Health and from the National Department of Health to the actual health service (Booyens 2008:67).

#### **2.3.2.1.2 Ethical codes: Code of Conduct for the Public Service**

In the Public Service Regulations (South Africa 2001, Chapter 2), the Code of Conduct for the Public Service is outlined to serve as a guideline to staff regarding what is expected of them ethically. This guideline refers to the expected ethical behaviour of staff with regard to their individual conduct as well as their conduct in relationships with others. It is in line with the supportive communication pole of the Gibb’s conceptual framework. It underscores the same ethical principles (behaviour) applicable to a supportive communication climate, such as sound interpersonal relationships, equitability, empathy and co-operation.

The specific provisions of the Code of Conduct, which have a direct bearing on this study, are included in Section C.3 entitled: “Relations among employees” and specifically the following subsections are noteworthy:

- Subsection C.3.1 – “An employee co-operates fully with other employees to advance the public interest.”
- Subsection C.3.4 – “An employee uses the appropriate channels to air his or her grievances or to direct representations.”
- Subsection C.3.5 – “An employee is committed to the optimal development, motivation and utilisation of his or her staff and the promotion of sound labour and interpersonal relationships.”
- Subsection C.3.6 – “An employee deals fairly, professionally and equitably with other employees, irrespective of race, gender, ethnic or social origin, colour, age, sexual orientation, disability, religion, political persuasion, conscience, belief, culture and language” (South Africa 2001, Chapter 2).

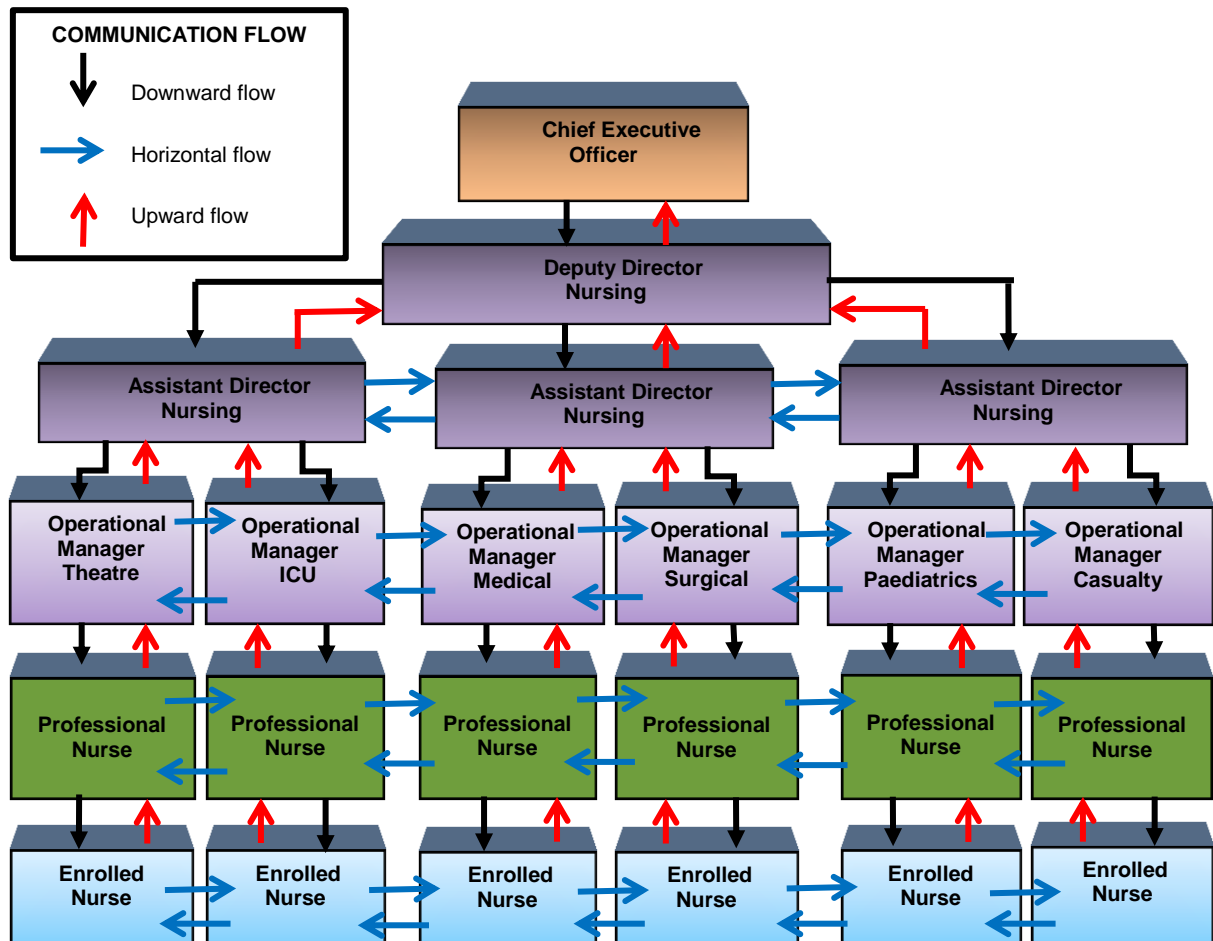
#### *2.3.2.1.3 Policies and goals*

Policies are perceived as a means to accomplish set organisational goals and objectives (Jooste 2010:94) and, for that matter, can be utilised by implication or by expression. Policies by implication are not directly voiced or written, but are established by a pattern of decisions. Policies that are expressed can be expressed orally (a more flexible form) or in written form, which is more rigid (Jooste 2010:94). In the health care context, Meyer et al (2009:268) state that policies are guidelines enhancing the standard of nursing care in the nursing unit. The goals of the National Department of Health and the public health care services are communicated by means of memoranda and intranet announcements.

#### **2.3.2.2 Institutional (public hospital) communication**

Organisational communication, as already discussed, involves itself with how individuals and/or groups interact on interpersonal, group and institutional levels, and may be formal or informal in nature. Public health services can also be classified as organisations, and as such also use organisational communication.

Applied to the public hospital context, institutional communication refers to all types of formal communication travelling horizontally or vertically via all structures, levels, divisions and units of public hospitals, for different purposes, through operational procedures and structures (see Figure 2.1). This is the ideal communication structure for public hospitals (Mellor & Dewhurst 2009:18-19).



**FIGURE 2.1: FLOW OF COMMUNICATION IN A PUBLIC HOSPITAL**  
 Source: Adapted from Mellor & Dewhurst (2009:18-19).

### 2.3.2.2.1 Formal public hospital communication

Formal communication in public hospitals occurs mainly through the use of policies, procedures (guidelines enhancing the standard of nursing care in nursing units (Meyer et al 2009:268)) and departmental goals (broad statements used to formulate departmental objectives that need to be achieved by the health care team (Jooste 2010:94)). Staff should have access to information regarding departmental policies and goals; such information should preferably be formulated in understandable, written form, following a specific, concise and complete format. It should be stored in a policy manual (Jooste 2010:95) and/or in an electronic file format that is easily accessible to all staff.



A new communication model was accepted in South African health care services after the apartheid-era (1948-1994). This new model moves away from the paternalistic doctor-to-nurse (Dingley et al 2008) interaction, allowing communicational interaction of all multi-professional health care team members on an equal basis.

English replaced other languages as the *lingua franca* in South Africa in 1996, despite the diversity of the languages spoken by its residents (Baldauf & Kaplan 2004:257-259). Following suit, all levels of government subsequently had to adapt their language policies to accommodate English. This is significant, because public hospitals (like other government institutions) use language to fulfil three functions, namely to *label*, to *interact* and to *transmit* information (Barker & Gaut 2002 in Greeff 2012:53).

Language is firstly used to *label* in terms of identifying an act, object or person in order to avoid ambiguity (Barker & Gaut 2002 in Greeff 2012:53). A basic example is the use of the term *professional nurse*, which in the corporate tongue of health care services refers to professional nurse – one of the many nursing categories functioning in a public hospital (see section 2.7.3.4 for a full definition). Nevertheless, the English term *professional nurse* (which should be the preferred English term) is used so seldom that the term *sister* has become widely embraced, being used by the general populace of South Africa.

Secondly, language is used to *interact*, which in context would mean the communication and sharing of ideas and emotions (Barker & Gaut 2002 in Greeff 2012:54). However, the diversity in terms of language and culture of staff in public hospitals makes interaction (even once the obstacle of understanding has been overcome) a delicate process. Each culture and language has a different set of rules to govern the act of interaction. For example, in everyday interaction, “some of the African cultures use vivid descriptions and examples in their communication” (Naudé & Le Roux 2005, cited in Greeff 2010:66). By contrast, communication in hospitals uses direct language, which is void of any vivid descriptions, so as to avoid ambiguities. This direct language approach is often perceived by staff as abrupt and rude (Greeff 2010:66).

Thirdly, communication is used to *transmit information* from one person to another (Barker & Gaut 2002, cited in Greeff 2012:54).

However, when the difficulties with regard to language diversity are considered, especially in health care settings, it becomes evident that the transmission of information through only one language can be problematic (Martin et al 2013:230). This problem is even further intensified when the transmission has to be done through differing media or channels and hindered by various communication barriers.

#### *2.3.2.2 Informal public hospital communication*

The informal communication network that exists in all organisations is called the *grapevine*. It includes e-mail and cell phone text messaging, face-to-face peer meetings and one-on-one peer discussions. The grapevine does not concentrate solely on gossip; in fact 80% of information communicated via this network consists of business-related politics, and 70 to 90% of this information is usually correct as to detail. It serves an important purpose, as it fulfils a basic human need for social interaction in the workplace, but it needs to be managed to increase productivity (Bezuidenhout 2014c:194).

The grapevine in the public sector, like that of all other organisations, is an active one and its accuracy is debatable; however, important information in the public sector often follows the grapevine route. The effectiveness of the grapevine in the public health care services is determined by how comfortable professionals are with using informal channels of communication to discuss issues with co-workers.

Employees as communicators are essential elements of the communication environments in which they find themselves. The professional nurse interacts on a daily basis with other health professionals. Although nurses prefer to use informal communication, the type of support they seek from management still includes visibility, accessibility and availability (Duffield, Roche, Blay & Stasa 2010:30; Rabie 2013:204).

#### **2.3.2.3      *Interpersonal communication***

Interpersonal communication refers to communication occurring between people face to face (Steinberg 2007:62). Interpersonal relationships are all built on communication, because communication leads to the establishment, development and maintenance of relationships (Steinberg & Angelopulo 2015:161).

Daily communication interactions between managers and employees represent the interpersonal communication in an organisation. Effective interpersonal communication in an organisation is characterised by personal feedback, supervisory communication and subordinate communication (Downs & Adrian 2004:139).

Successful feedback is when the results of such feedback provide employees with clear and direct information on work performance (Muller et al 2011:376). In the hospital environment and the nursing profession, feedback (especially personal feedback) is regarded by most nurses as a measurement of their work performance. Not all nurses perceive personal feedback as positive, due to a number of reasons; Jooste (2009:405) states that feedback should be provided only if the outcome thereof is considered to be developmental to both parties involved. Booyens (2008:246) echoes this statement and adds that feedback should be provided close to an event to ensure that the experience remains fresh in the minds of both the parties.

Supervisory communication includes the extent to which supervisors listen to, offer guidance to, trust, are open to ideas from and effectively supervise subordinates. Supervision, according to Muller et al (2011:370), is the process of striving for quality outputs in a work team and can be achieved through monitoring, guiding and supporting employees in an effort to achieve the goals of the organisation.

The subordinate communication characteristic of interpersonal communication is based on the perceptions of managers with regard to the communication of their subordinates, thus how responsive subordinates are to downward-directed communication and criticism, how they anticipate the manager's need for information and initiate upward communication, and the extent to which the manager can avoid communication overload (from subordinates).

## **2.4 CHARACTERISTICS OF A COMMUNICATION CLIMATE**

Every communication climate has two distinct characteristics, namely *defensiveness* and *supportiveness*, which are both interlinked with the conceptual poles of the Gibb's defensive communication climate model (1961).

### **2.4.1 Defensiveness**

*Defensiveness* implies protecting oneself from an attack and guarding the presenting self and face (Adler, Rosenfeld, Proctor & Winder 2009:295); however it does not imply physical threat through bodily attack or harm. Defensive communicators also guard against something different from aggression, because defensiveness is not aggression. To explain the difference it is necessary to explain the *presenting self/face*. The term *face* is defined by Adler et al (2009:296) as “the different *selves* we present to different people”, it is “the self-image or self-respect that [communicators] seek to maintain”. The *presenting self/face* includes “physical traits, personality characteristics, attitudes, aptitudes, and all other parts of the image presented to the world” (Adler et al 2009:295).

Because we might want to display different *selves* to different people we present more than one *face*, depending on which role is adopted during communication (Beebe, Beebe & Redmond 2007:219). Defensiveness is thus the process of protecting the *presenting self/face*. There will be no need to feel defensive if others are willing to acknowledge the different parts of the *presenting self* of the individual. If individuals are, however, confronted with *face-threatening acts*, they are prone to resist what others say. *Face-threatening acts* are defined as messages “that challenge the presenting self that people want to project” (Adler et al 2009:296).

### **2.4.2 Supportiveness**

*Supportiveness* is a characteristic of a positive (supportive) communication climate and is created through the use of confirming messages. Supportive responses are the most important type of confirming responses and occur when there is an expression of reassurance and understanding, thus conveying value, and causing others to value themselves more. Beebe et al (2007:117) add that a supportive response occurs when someone is “confirming a person’s right to his or her feelings”. Therefore, it can be deduced that supportiveness gives rise to supportive communication climates.

## 2.5 DIMENSIONS OF A COMMUNICATION CLIMATE

The communication climate is formed by a number of aspects or features (Soanes et al 2009:402), called dimensions, and in this study they will refer to the aspects or features of a communication climate (Adams & Galanes 2012:110-115). These dimensions determine whether the communication climate will gravitate towards a defensive or a supportive pole. As stated previously, defensive climates are experienced as closed, and supportive climates as open, and in the practical setting the communication climate contains elements from both extremes.

Three communication climate dimensions are identified by Buchholz (2012): *supportiveness*, *cohesiveness (participation)*, and *trust*. These three dimensions are described as the extent to which people can feel togetherness, have trust in each other, observe honesty, experience support from their colleagues and feel appreciated (Adams & Galanes 2012:110-115; Buchholz 2012).

### 2.5.1 Supportiveness

The term *supportiveness* has already been discussed in the previous section (see 2.4.2); thus in this section the term will be discussed with regard to its status as a communication climate dimension only. Buchholz (2012) claims that *supportiveness* is important in a work environment because staff communicate more readily in supportive environments; as the system affords them dignity and respect, they have no need to fear reprisals for sharing; they are rewarded for being candid, are appreciated as vital sources of information and essential to organisational success.

Staff convey information to superiors without hesitation in supportive environments, confident that superiors will accept it, whether good or bad, favourable or unfavourable. Fear, shame, or pride discourage people from talking when they feel unsupported or vulnerable. Managers that are committed to teamwork and open communication will set the tone for psychological safety and create an environment for staff to communicate freely and professionally without fear or inhibition (Dingley et al 2008; Lutakwa 2012:19).

## 2.5.2 Cohesiveness

*Cohesiveness* refers to the attachment members feel towards each other, the group, and the task – the bonds that hold the group together (Adams & Galanes 2012:112). Members feel a sense of belonging, speak favourably about the group and other group members and conform to group norms. A group with a strong cohesive structure provides its members with enough security, lowers anxiety levels and heightens self-esteem, productivity (Bezuidenhout 2014b:180), and job satisfaction (Moodley 2011:113). However, poor participation and conflict in the group can affect cohesiveness negatively, and result in lower commitment and productivity (Bezuidenhout 2014b:180).

## 2.5.3 Trust

*Trust*, according to Thomas et al (2009:290), “is based on the beliefs one has about another and is formed as a direct result of the assimilation of information that is gathered about that party”. It refers to the general belief that group members in an organisation can rely on each other (Adams & Galanes 2012:110), is closely associated with empathy, positive attitudes, self-disclosure, and reciprocity (Thomas et al 2009:288) and is a highly complex process. Two types of trust exist, namely *task-related trust* and *interpersonal trust*. *Task-related trust* occurs when trustworthy members can be depended on to complete tasks for the group; *interpersonal trust* relates to a belief that group members are functioning in the best interests of, and value fellow group members. The types of trust emerge at different times over the lifespan of a group. Initially trust between members is one-dimensional, but over time, working together, members have the actual behaviour of other members to base their trust and judgements on (Adams & Galanes 2012:111-112).

In an organisation, staff have to *believe* their sources of information. Providing accurate and timely information “gives an employee the opportunity to develop trust, and providing too little, untimely or inaccurate information can have the opposite effect” as “employees will exhibit higher levels of trust when they believe the information they are receiving from the other person is accurate, timely, and useful” (Thomas et al 2009:290). If contradictory information is continually passed on, the integrity of the communication channel will be corrupted. Staff will be reluctant to support organisational goals if they “cannot trust their supervisors or if open communication is non-existent” (Thomas et al 2009:291), because trust is the binding force (Manamela 2009:191).

## **2.6 TYPES OF COMMUNICATION CLIMATES**

There are two main types of communication climates, namely *defensive* and *supportive communication climates*, which will be discussed in more detail.

### **2.6.1 Defensive communication climates**

A defensive communication climate is a climate in which the individual feels anxious or threatened when communicating with others. Outwardly, the conversation may appear normal, while inwardly individuals are putting mental energy into defending themselves (Gibb 1979). The defence may consist of thoughts about how one appears to another, how one can be seen more favourably, or how one may end up a winner in the conversation through domination, by impressing the other or by avoiding attack or punishment. In a defensive climate, the other person in the conversation picks up the verbal and non-verbal cues and, in turn, listens defensively (Gibb 1961; 1979).

A defensive climate emerges when members try to control, manipulate, and criticise each other (Gibb 1961:141-148). If members are afraid they will be attacked by other members, they hesitate to offer their own opinions. They spend so much time defending themselves or being on the alert for psychological assault that they do not pay much attention to the task of the group.

### **2.6.2 Supportive communication climates**

A supportive communication climate refers to a climate where the individual feels less threatened, so that more emotional and mental energy is put into the content and meaning of the message rather than in composing a defensive response (Gibb 1979; 1961). A supportive communication climate fosters an acknowledgement of the ideas of many individuals, thus creating a free flow of communication between staff and managers at any organisational level (Trenholm 2011:185). As individuals settle into an organisation, they start to communicate in ways they feel appropriate for the organisation (Trenholm 2011:268). It is this supportive communication dimension that formed the foundation for this study.

A supportive climate opens communication, thus making room for learning from multiple perspectives. Adams and Galanes (2012:133) state that members in a supportive communication climate encourage, care about, and treat each other with respect. Members who display supportive behaviour uphold ethical principles on how to treat each other. Such members believe their opinion is valued by the group, even when other members disagree with their opinion.

Because members feel safe from psychological assault, they are free to direct most of their energy towards helping the group accomplish its task. In a supportive climate the providing of emotional support is essential when individuals are communicating with one another, as “the importance of positive, supportive messages that communicate liking or affection” is a basic principle of healthy interpersonal relationships (Beebe et al 2007:148). To this end, Burleson (2009:21) defines supportive communication as “verbal and non-verbal behaviour produced with the intention of providing assistance to others perceived as needing that aid”.

### **2.6.3 Communication climate patterns**

Gibb (1961) found that once communication climates are created, they form patterns which continuously oscillate between positivity and negativity. Because a communication climate can essentially build or destroy human relationships (Hajdasz 2012:7; 25; 40), it is necessary to understand how these climate patterns work. Over time, due to the reciprocity of messages, climate patterns form, which often take on the shape of positive or negative spirals (Hajdasz 2012:7).

Although it is understood from the foregoing discussions that positive climates are more often created through supportiveness, and conversely negative climates created through defensiveness, communication climates still have the potential to take on a life of their own once they are formed with either a positive or a negative spiralling pattern (Hajdasz 2012:26). Once a communication climate is established, the communication climate pattern continues by being either positive or negative, and therefore Hajdasz (2012:27) suggests that “an interpersonal approach to communication climate is useful in describing the impact of defensiveness on people’s self-worth”. Equally important is also how supportiveness can impact on the interpersonal self-worth of the same individuals.



*Negative climate spirals* can easily get out of control. Continuous negative spirals can lead from one attack to the next, resulting in conflict and aggressive behaviour (Hajdasz 2012:2). It is in such cases that both interlocutors may decide to back off from their negative behaviour, reaching “a cooling-off period”, or “may work together more constructively to solve their problem” (Adler et al 2009:297).

In the worst-case scenario, the interlocutors may pass “the point of no return”, and the relationship might end because some exchanges are “so lethal that the relationship cannot survive them” (Adler et al 2009:298). It is, after all, impossible to withdraw messages that have already been transmitted.

*Positive climate spirals* have their own limitations, and good relationships experience their own “rocky periods”, depending on specific circumstances, causing the communication climate to suffer. “Accumulated goodwill and communication ability can make these times less frequent and intense” (Adler et al 2009:298). Individuals using supportive communication will avoid potential disconfirming or devaluating language. Still, this will not ensure that all supportive messages will lead to positive climates.

Gibb’s model offers a way of simultaneously creating supportive as well as productive messages. The model is prone to building a positive climate spiral and also flexible enough to create or repair a negative climate. Regardless of whether spirals are positive or negative, they rarely continue endlessly (Hajdasz 2012:26).

Words and language have a very strong effect on the perceptions of individuals and how individuals consequently will regard one another. Adler et al (2009:143) state that “language reflects the speaker’s willingness to take responsibility for her or his beliefs, feelings and actions” and therefore it is the choice that a speaker makes to either accept or reject this responsibility (as a communication style) that will determine whether they build or destroy the quality of their relationships with others.

## **2.7 FACTORS INFLUENCING A COMMUNICATION CLIMATE**

The influences on health service communication are multi-factorial (Penn, Watermeyer & Evans 2011:310-318). Communication, and consequently the communication climate,

is influenced by this organisational climate and communication factors (Kim & Rhee 2011:243; Mazzei 2010:221; Welch & Jackson 2007:177).

## **2.7.1 Factors influencing the organisational climate of an organisation**

The factors influencing the organisational communication of an organisation include the type of organisation, the units/departments in an organisation, organisational integration and the organisational perspective.

### **2.7.1.1 Type of organisation**

Not all organisations operate in the same way. Some are larger than others and have a wider or more complicated line of authority. Smaller organisations with smaller hierarchies might experience their communication as warmer and friendlier than larger organisations.

### **2.7.1.2 Types of units**

Staff in different units of an organisation communicate differently. Studies in a hospital setting, conducted by Newcomb (2011) and Runkel (2013), proved that communication between staff members in intensive care units is different from communication in other areas of the hospital and is directly linked to the specific work (hybrid) environment. These findings are echoed in another study conducted by Stow (2012) on nurses functioning in an operating room environment.

### **2.7.1.3 Organisational integration**

*Organisational integration* is the degree of unity staff feel with the organisation. All staff have two dominant relationships in the work place; one with the organisation and a second with managers (Sluss, Klimchak & Holmes 2008:457). The term also refers to the satisfaction of staff with the information they receive about their immediate work environment, such as information on departmental policies (Meyer et al 2009:268) and goals (Bezuidenhout 2014a:147; Jooste 2010:94), job requirements and personnel news (information about the well-being of co-workers).

#### **2.7.1.4 Organisational perspective**

The communication climate within an organisation's internal environment is dependent on the perception of staff. *Perception* is defined as "the ability to see, hear or become aware of something through the senses" and as "a way of regarding, understanding or interpreting something" (Soanes et al 2009:1063). Perception, in this study, is based on the assertion that the behaviour of staff towards an organisation is dictated by their perception of the organisation.

It is contextualised in terms of their satisfaction (with the communication climate), and focuses on their perceptions regarding the internal communication (such as communication events, activities and behaviour) in the internal environment of the organisation (Greeff 2012:143,156; Hemmert 2009:14) and the quality of mutual relationships (Jootun & McGhee 2011:40). Therefore, maintaining open communication in an organisation is a pivotal component of professional collegiality (Faris, Douglas, Maples, Berg & Thrailkill 2010:35; Rabie 2013: 202). Organisations must ensure that staff at all levels share a common understanding of the organisation's strategic direction, have the access to the same information, and understand how their decisions and actions impact on the rest of the organisation (Gannon 2008:4; Welch & Jackson 2007:190), in order for them to have the correct perception and value the organisational perspective of the organisation.

### **2.7.2 Factors influencing organisational communication of an organisation**

The factors influencing the organisational communication of an organisation include downward-directive communication, upward communication, horizontal and informal communication, personal feedback, and media quality.

#### **2.7.2.1 Downward-directive communication**

*Downward-directive communication* refers to how staff respond to communication directed down to them by their managers. Muller et al (2011:318-319) describe patterns of communication from the viewpoint of the manager, addressing issues such as who is talking to whom, what is said, how it is said, and who is listening (or not). Managers also take note of non-verbal behaviour.

Communication regarding evaluation, suggestions and criticism are very sensitive in nature, and the extent to which staff are receptive to such communications from management and vice versa is dependent on the degree of caution with which managers approach this task. Jooste (2009:235) states that two-way communication between employees and their managers creates a platform where opinions can be exchanged, and there is openness to criticism. She also states that this is not where it should stop; managers must be confident enough to communicate the views of staff under their leadership to top-level management without hesitation. It is important that these employees should be informed of the results of the communication with top-level management (Welch & Jackson 2007:187).

### **2.7.2.2 Upward communication**

*Upward communication*, in general, alludes to messages which flow from employees to managers. Upward communication is initiated to ask questions, provide information and feedback and to voice opinions or make suggestions (Jones 2006:16). Accurate upward communication represents the extent to which staff feel responsible for initiating such communication. Often, if upward communication flow issues are problematic in an organisation, there will also be issues with downward communication. Regardless, upward communication should still be encouraged by managers (Wild 2010:65, 71).

Lower-level employees often distort information they convey up the chain of command, and this phenomenon is usually common in people that have a high achievement drive (Jones 2006:16). Information can also be viewed as power, and relinquishing information can imply a loss in power. Employees tend to convey only the information that shows them in the most favourable light, and tend to “hoard as much information as possible for as long as possible” before they send it up the hierarchy (Jones 2006:16).

### **2.7.2.3 Horizontal and informal communication**

*Horizontal communication* refers to the informal communication of employees with co-workers at the same hierarchical level (Swanepoel & Slabbert 2012:462), and how comfortable staff are with using the informal communication channel (*grapevine* or informal communication network that exists in all organisations) to discuss issues with co-workers.

Because employees outnumber managers, and communication among equals is uncomplicated and more comfortable, a large amount of organisational communication flows horizontally (Richmond & McCroskey 2009:30). For employees to support each other and receive practical guidance from others, the atmosphere in which they work in an organisation must be conducive to collegial communication and inter-departmental interaction (Moodley 2011:98).

#### **2.7.2.4 Personal feedback**

Personal feedback to staff is the factor that completes the two-way communication cycle (Bezuidenhout 2014c:198). Sufficient feedback to staff from managers is an essential measure to improve productivity and performance.

Although it is essential for staff to receive timely information on how to do their jobs, acknowledgement of work well done is equally important. Managers should concentrate on acknowledging their employees' achievements and promote self-esteem through no-cost rewards, such as complimentary letters to employees. Additionally, regular and consistent performance appraisals by managers should be encouraged (Kekana, Du Rand & Van Wyk 2007:34).

#### **2.7.2.5 Media quality**

Media quality, according to Downs and Hazen (1977:72), refers to the reactions of staff to several important communication methods, formats and channels. It refers to the degree to which meetings ("two or more people gather to discuss and resolve issues of common interest" (Jooste 2010:100)) are organised (Faris et al 2010:43; Jooste 2010:100; Jooste 2009:402), written directives and reports are clear and concise (Meyer et al 2009:267, 270; White, Vanc & Stafford 2010:78) and the amount of communication (referring to communication overload or underload) received is satisfactory.

Employees can easily feel overwhelmed by too much information or left out by too little information (Swanepoel & Slabbert 2012:463), especially in one-way communication (Ruck & Trainor 2012:3), regardless of whether this information is applicable to their work situation.

### **2.7.3 Communicator levels in the communication climate of an organisation**

Most organisations have four basic employee groups and (therefore also) communicator levels, namely upper (top) management, middle management, first-line managers and employees at production level (Akrani 2011; Lategan 2013:39; Ruck 2012; Smith 2008:27).

At upper (top) level management, the communication role of a manager is ceremonial and a boundary-crossing function (Muller 2009:100). Top level managers must acquire the ability to deliver presentations to internal organisational professionals, for example reports to other departments; reports to other teams and newsletter publications and to external stakeholders, for example statements to the press (Akrani 2011; Smith 2008:27).

Middle management level managers are required to be fluent in classic communication forms and must possess the ability to correct, edit and supervise the communication of others. As middle managers find themselves heavily involved in communication between different departments (Muller 2009:100), they need team skills, negotiation and diplomacy in office politics to succeed (Akrani 2011; Ruck 2012; Smith 2008:27).

First line managers are expected to provide instructions and direction, often in written format such as memorandums, letters and e-mails. They are required to use interpersonal skills such as the ability to monitor and motivate diverse groups of individuals and the ability to manage difficult employees and situations (Jooste 2010:261; Muller 2009:100). Communication at this level is via direct reports and peers (middle managers) within and outside of their own departments (Akrani 2011; Mikoluk 2013; Ruck 2012).

Employees at production level do not have supervisory responsibilities and thus their communication will vary greatly depending on the department where they are working. They generally prefer concrete, sensory sources of information and they are expected to have basic communication skills (e.g. command of spelling and grammar) (Toner 2011:8; 14).

The interpersonal communication climate in public hospitals (as organisations) is also pervaded by a number of individuals (Van der Kaap 2012:14). The most prominent of these individuals include multi-professional health care team members, non-medical staff, operational managers, professional nurses, nurse educators, lower categories of nursing staff and students.

### **2.7.3.1 Multi-professional health care team members**

The multi-professional team has always been defined as a group of individuals from different professions working together towards a common goal. Although multi-professional health professionals “represent different health and social care professions and may work closely with one another, they may not necessarily interact, collaborate or communicate effectively” (Stone 2009:2). The interdependent relationships between the categories of professionals are many and varied (Rasetsoke 2012:3; Searle et al 2009:59).

Communication problems can occur in the multi-professional team because each of the professions represented in such a team maintains independent systems of information, even when they are attempting to work together as a team (Uys & Middleton 2014:77).

### **2.7.3.2 Non-medical staff**

Non-medical staff include all the staff in a public hospital that have non-medical or nursing functions, such as administrative, domestic, transport and porter duties. Communication difficulties can occur between health professionals and non-medical staff due to the use of medical language (terminologies) by the health professionals (Martin et al 2013:220), and non-medical staff disrespecting the authority of health professionals.

### **2.7.3.3 Operational managers**

The term *operational manager* refers to nurses registered under section 31 of the Nursing Act, 33 of 2005 (South Africa 2005) as nursing professionals. Operational managers are the nursing professionals within public hospitals, functioning at the managerial levels as Ward/Unit Managers.

The nature of health service (hospital) environments requires managers to be obsessed with discipline and self-discipline. An autocratic leadership style causes stress and creates a defensive climate, lowers morale, renders professional nurses ineffective and impedes communication (Moodley 2011:106; Nkosi 2011:58; Singh 2012:18; 57). Instead, operational managers should be trust builders: honest, sincere, good communicators and listeners and providers of feedback (Bezuidenhout 2014d:300; Moodley 2011:83).

#### **2.7.3.4 Professional nurses**

The concept of *professional nurse* refers to a person who is registered or enrolled under section 31 of the Nursing Act (Act 33 of 2005) and pertains to “a person registered as such”. Professional nurses form the largest group of professionals in public hospitals and are classified according to the service level structure, depending on their work experience and years of service.

#### **2.7.3.5 Nurse educators**

The term *educator* refers to different concepts such as lecturer, teacher, tutor, clinical facilitator (De Swardt 2012:112; Mkhwanazi 2007:13) and in the South African context to a person who has an additional educational qualification, is registered with the SANC and teaches theoretical content at a university or college (SANC 1987:R118).

International researchers agree that educators can have a great influence on how students, in the process of becoming future professional nurses, will communicate (Messersmith 2008, cited in De Swardt 2012; Saarikoski, Warne, Kaila & Leino-Kilpi 2009). The educator greatly influences the development of the communication abilities of students (Messersmith 2008, cited in De Swardt 2012:13). Furthermore, the characteristics of a good educator, such as good interpersonal and communication skills, will enhance the learning outcomes of students (Saarikoski et al 2009, cited in De Swardt 2012:113). Negative interpersonal communication encountered in the clinical environment can hamper the clinical learning outcomes of students (Engelbrecht 2012; Hewett 2010; Nelwati, McKenna & Plummer 2013). The educator, therefore, becomes the role model of the student and this role becomes more profound in the modern workplace, such as the multi-cultural and multi-lingual hospital environment.



In the South African context, the role model function of educators is ineffective. Cronjé (2010:67) found that student nurses cannot rely on the support from professional nurses to cope with issues such as language barriers in the hospital, and Altmiller (2012:15) and De Swardt (2012:13) state that students justify their own uncivil behaviour by citing the type of behaviour modelled by seniors and educators. Students should observe and experience educators who exhibit collaboration and support among themselves.

#### **2.7.3.6 Lower categories of nursing staff and students**

Lower categories of nursing staff include the levels of Enrolled Nurses, Enrolled Nursing Auxiliaries and student nurses. Professional nurses act as clinical supervisors for lower categories of nursing staff. Unfortunately both professional nurses and lower categories of nursing staff report experiencing negative attitudes from each other (Ndaba 2013:58, 68; Tsotetsi 2012:51). The situation is so dire that student nurses even accuse professional nurses of displaying at times negative behaviour, such as hostility and favouritism (De Swardt 2012:94).

### **2.8 BARRIERS TO A SUPPORTIVE COMMUNICATION CLIMATE**

Barriers to a supportive communication climate in an organisation are legion. These barriers could potentially prevent public hospitals from developing and maintaining a supportive communication climate. Only the barriers most frequently highlighted by literature will be discussed for the purposes of this study, according to interpersonal, organisational and national barriers.

#### **2.8.1 Interpersonal barriers**

Interpersonal barriers to a supportive communication climate include barriers such as the employees' (subordinate communication) relationships with managers, the employees' perception of manager communication, the managers' (supervisory communication) relationships with subordinates, as well as differences in age, status, tenure in hospitals, language and gender.

### **2.8.1.1 Employee (subordinate communication) relationships with managers**

Employees' relationships with managers (subordinate communication) refer to upward and downward communication that managers have with them and the confidence that managers place in staff to initiate upward communication. This also refers to employees' responsiveness to downward-directed communication, indicating whether staff trust their managers enough. If that is the case, it will foster open upward communication with managers and facilitate a supportive climate (Moodley 2011:99). The subordinate communication dimension (of the Downs and Hazen model 1977) indicates that staff will communicate when they feel free to do so and can trust the supervisor (Bezuidenhout 2014d:300).

According to Gibb's defensive communication climate continuums, employees (such as professional nurses) who have a defensive communication orientation will resort in the defensive group. If that is the case in the present study, operational managers will instruct professional nurses, during operational manager-professional nurse interaction, on what to do, when to do it, how to do it and implement communication strategies such as face-to-face communication (Ruck & Trainor 2012:4) or team meetings.

Sullivan and Decker (2005, cited in Marriner Tomey 2009:10) found that, although downward directed communication is the most widely implemented communication method, it is the least preferred by professional nurses (see section 2.4).

In contrast to a defensive relationship, the Gibb's communication climate continuums indicate that communicators experiencing positive communication will resort under the supportive group (see section 2.5.1). It is therefore expected that professional nurses who function within a negative (defensive) communication climate will have no correlation in all six conceptual continuums. This rationale led to the development of research question 1, which states: *What is the communication behaviour orientation of the respondents with regard to the six Gibb's conceptual continuums?*

### **2.8.1.2 Employee perception of manager communication**

Perception is a process, and communication is influenced by the way in which people interpret the information received from the environment (Hemmert 2009:14). During interpersonal communication, information has to pass through this perceptual filter or screen. Because individual perceptions are influenced by factors such as values, cultural backgrounds and circumstances pertaining to the moment, the outcomes of this screening process may vary greatly from situation to situation (Ferreira et al 2009:107). Perception can thus influence communication and interpersonal relations greatly, as people can and do perceive the same situations very differently (Ferreira et al 2009:107). For example, if communication is only downward directed, the professional nurse might perceive the manager's communication behaviour as negative.

### **2.8.1.3 Manager (supervisory communication) relationships with employees**

Swanepoel and Slabbert (2012:459) claim that communication deficiencies are often to blame when the quality of employee relations in an organisation is poor. The managers' relationship with their employees (supervisory communication) refers to both the upward and downward communication that employees experience with managers. The satisfaction level of staff during manager-employee communication depends on aspects such as the extent to which the manager is open to ideas, listens and pays attention to the employee, trusts the employee and offers guidance to solve job-related problems (Jones 2006:38; Muller et al 2011:370-372).

*Openness* indicates the extent to which the manager is open to new ideas, and it links to the element of trust and the extent to which a person can be relied on to be truthful when issues of trust are at stake (Robbins, Judge, Odendaal & Roodt 2009:75). Open communication is the sharing of all types of information throughout the organisation, across functional and hierarchical levels (Muller et al 2011:371). In other words, in a situation of mutual trust and open communication, the manager can confidently be open to new ideas from staff and colleagues. Daft (2011:237) argues that an open communication climate is important to facilitate a *cascading* organisational vision, which in turn is essential because a vision must be shared and practised by leaders. He states further that if leaders do not embody a vision, in reality they represent an organisation without a vision and values.

*Attention*, in context, refers to the extent to which managers listen and pay attention to their staff (Meintjes & Steyn 2006:159). Employees in an organisation have specific internal communication needs, such as direct and personal contact with managers, an understanding of the job and the organisation, being informed about issues related to the job at all times, and an atmosphere of trust and mutual respect (Van Staden, Marx & Erasmus-Kritzinger 2007:15). Employees tend to become very critical of their managers' unwillingness to listen to them (Manamela 2009:181), especially when communication is limited to top-down and one-way communication situations (Ni 2007:53).

*Trust*, with regard to communication, refers to the extent to which managers trust their employees and vice versa. Leaders must be worthy of their followers' trust; once assured of this trustworthiness, followers will follow the leader willingly. The most prominent type of trust that exists in organisations is "knowledge-based trust", based upon a history of interaction with someone, and knowing someone well enough to make a prediction of their probable behaviour (Robbins et al 2009:259). Managers have to build and maintain trust in relationships with employees, thus communication is a guideline for building and maintaining trust in manager-employee relationships (Kreitner & Kinicki 2007:352). Communication embraces aspects like telling the truth (Bezuidenhout 2014d:300), providing accurate information and feedback, meeting deadlines and following through with promises (Alexander 2008; Rasetsoke 2012:26). Managers who supply employees with appropriate information to simplify their work and are readily available reflect an open climate of trust in employees to make their own decisions (Jooste 2009:225).

*Guidance* refers to the extent to which the manager offers staff guidance for solving job-related problems they face on a daily basis, which require the insight of the manager. The employee needs regular guidance from managers on how to handle challenges in the workplace (Jones 2006:10). Active staff participation in the decision-making process can also lead to stability in an organisation. Managers who value contributions from staff, encourage participation, promote decision making and influence coordination could enhance the positive aspects of a working environment (Lephalala, Ehlers & Oosthuizen 2008:63). During operational manager-professional nurse interactions, professional nurses will be responsible for their own communications and decide, in cooperation with managers, what will be communicated, how it will be communicated and implement communication strategies such as group discussions and meetings.

Team meetings could be used to strengthen relationships between managers and employees (Quirke 2008). The communication behaviour of respondents should correlate with their perceptions of the operational managers' communication behaviour. However, Tsotetsi (2012:64, 90) found that professional nurses, with regard to organisational communication, identified barriers to their communication satisfaction such as rigid supervisor-subordinate hierarchies, lack of experience and skills, lack of role models, high levels of stress, shortage of staff and inaccessible communication channels. In contrast, professional nurses prefer operational managers who have insight into the nursing practice situation and can act as role models, in a less downward-directed manner. Yet, such operational managers must still establish and maintain open communication channels to facilitate more face-to-face interaction and more opportunities for upward feedback (Quirke 2008; Sullivan & Decker, cited in Marriner Tomey 2009:10).

It is therefore expected that there will be a relationship between the respondents' communication behaviour and their perceptions of the operational managers' communication behaviour with regard to their communication climate focus pertaining to the six conceptual continuums. Additionally it is also expected that all six conceptual continuums will cross-match in the same direction. This rationale led to the development of research question 2, which states: *What are the respondents' perceptions of the operational managers' communication behaviour orientation with regard to the six Gibb's conceptual continuums?*

#### **2.8.1.4      *Unique aspects (diversity) of professional nurses***

In addition to the general diversity of the population of South Africa, public hospitals have an even more diverse and unique workforce (Lehohla 2007:1; Jooste 2009:186-187) and in Gauteng the professional nurse corps is characterised by diversity (Gauteng Department of Health 2009:6). Professional nurses act as first-line managers to more junior nursing staff (such as enrolled nurses and auxiliary nurses) and students (Akrani 2011) and have unique aspects that distinguish them from other categories of health care professionals. The uniqueness of professional nurses is most notably understood by defining the unique aspects (diversity) of the professional nurse, characterised by factors such as age, gender, race, culture, language and professional status.

#### 2.8.1.4.1 *Differences in age*

Differences in age and therefore generational values, behaviour, and attitudes have the potential to create significant conflict in the workplace (Jooste 2009:154). Four different generational groups (Veterans, Baby Boomers, Generation Xers and Millennials) exist in modern workplaces, each with a different set of values and perception of the organisation, the organisational climate and of communication (Jooste 2009:154). Considering these generational groups in the communication climate context of an organisation, it is important to understand the communication behaviour of each group in view of a possible communication climate refocus.

*Veterans* (born 1925-1945) are known for their respect for authority and stern loyalty. They have an old-fashioned family values and cultural mind set, value loyalty, discipline, teamwork, respect for authority and hierarchy and seniority-driven entitlement (Kgongwana 2012:61). They are more comfortable with communication systems that are inclusive and build trust (Duchscher & Cowin 2004:500). Face-to-face or written communication will be more effective than communication that involves the use of technology. Unfortunately technology is unavoidable in the modern workplace and means of communication (such as touch screen computers, palmtops, laptops and tablets) will progressively become more technologically advanced in future. Therefore veteran nurses will find it increasingly more difficult to cope in the modern workplace.

*Baby Boomers* (born 1946-1964) are distinctly competitive, passionately spirited, strong willed and intent on bringing humanity and heart to the workplace (Kgongwana 2012: 62). They prefer open, direct and less formal communication and processing of information and value staff meetings that provide discussion opportunities. They also prefer face-to-face or telephone communication (Mokoka 2007:107). If they feel comfortable with technology they will use e-mail as well (Duchscher & Cowin 2004:500); however, as with veteran nurses, technology will not be optional in future but the norm.

*Generation Xers* (born 1965-1980) are very self-reliant and competitive individuals who display little respect for authority and minimal loyalty to organisations (Jooste 2009:155). Their formative experiences have given them a propensity for outcome rather than process, a greater affinity for information than introspection and a desire to know facts over emotions.

They are intimately familiar with ambiguity and flexibility, which renders them anxious when faced with rigid and fixed imposed processes (Kgongwana 2012:62). Technological communication appeals to them, as they were the first generation to have television as part of their daily lives. Their communication approach is outcomes based, and they may become bored at meetings that include considerable discussion before decisions are made (Mokoka 2007:93; Sherman 2006).

*Millennials* (born 1981-2000), also labelled the “Net-generation” (Jooste 2009:154), are technologically advanced individuals who accept diversity, are achievement orientated, sceptical, realistic and assertive (Jooste 2009:155). They have strong peer relationships and are collective, cohesive and collaborative because they have socialised within a neutral plane with individuals from other genders, cultures, races and religions. Millennials are used to technology and exceed other generations in knowledge and use of computers and digital technology. However, they are not skilled in interpersonal dynamics and social relationships and their social skills are defined as unsophisticated (Kgongwana 2012:62). They prefer immediate feedback and may become frustrated if their e-mails or telephone messages are not answered instantly. They tend to read less (Mokoka 2007:104-105) and distributing lengthy policies and procedures to read may not be effective with this generation, but e-mails and chat rooms are good mechanisms for providing them with communication updates instead (Carlson 2005:A34-A37).

Breier, Wildschut and Mqolozana (2009:22) state that in 2006 the highest concentration of professional nurses in South Africa (18 953) resorted in the age group 45–49 years of age, thus placing them in the *Baby Boomer/ Generation X* generational category. In 2013 the highest concentration of professional nurses (31%) resorted in the age group 50–59 and the lowest concentration in the below 30 age group (SANC 2014). Only a small number resorted in the age group younger than 25 (*Millennials*). These statistics indicate that the profession is an ageing profession, with fewer younger individuals entering the profession. What could be noteworthy from a generational, communication perspective is that older individuals might be more likely to fall into a negative (defensive) group, possibly due to a higher level of knowledge, skills, values and life experiences (Ndaba 2013:1). Consequently, younger employees might find it more difficult to work with these older employees than working with employees of their own age group (Kelly & Ahern 2008:913).

#### 2.8.1.4.2 *Differences in status*

The differences in status between group members at different hierarchical levels can become a barrier to effective communication (Dingley et al 2008), even in health care professions. The more communication between different categories of professionals becomes strained, the more significant the professional distance between them will become. The greater the disparity in roles, positions, qualifications, and status becomes, the less professionals will be able to interact with each other (Cell Press 2011).

The professional status of professional nurses compels them to act as role models to and clinical supervisors over lower category nurses and student nurses (Koen 2010:162). Thus, professional nurses should be “knowledgeable, approachable, portray a positive attitude and be aware of their own behaviour” (De Swardt 2012:92). It is expected that professional nurses should adopt certain communication skills through their professional socialisation with colleagues and managers over time (Jooste 2009:244). Newly qualified professional nurses hail from a tutor-dominated environment and require certain skills to survive in the practical environment. The operational manager is in an ideal position to create a supportive practice environment for neophyte professional nurses (Ferguson & Day 2007:107) to progress over time and attain a mature stage of independence and effective level of communication.

Characteristics displayed by mature professional nurses include loyalty, discipline, teamwork and respect for authority (Moodley 2011:106). Studies by Luhanga, Yonge and Myrick (2008:260) and Tsoetsi (2012:54, 62, 88) found that neophyte professional nurses were orientated towards effective communication principles and they actually implemented some of these principles in the workplace, but over time reverted back to their old ways. With support, professional nurses making the transition to professional maturity (Higgins, Spencer & Kane 2009:508) will develop insight and understanding regarding communication climates. After a few years of being exposed to a cooperative, supportive communication climate, professional nurses should perceive their operational managers as more orientated to a supportive communication climate.



#### 2.8.1.4.3 *Differences in tenure (time periods in hospitals)*

Neophyte professional nurses will find their first year as newly qualified professionals in the nursing unit riddled with challenges and frustrations such as orientation to a new climate, new work responsibilities and the stress of coping with demands from the multi-professional health care team members, colleagues, operational managers and patients alike (Ndaba 2013:5; Tsotetsi 2012:54, 90; Ferguson & Day 2007:107). Experienced professional nurses, who have functioned in the same unit/hospital for years and faced similar challenges to neophyte professional nurses, have over time acquired the skills, knowledge and attitude, to handle such challenges in a more effective way (Bruce et al 2011:263-264). As a result of the many different issues confronting professional nurses during different tenures (periods in the hospitals) and their acquired professional maturity, it is expected in the results of this study that the different tenures will have no significant effect on the respondents and their communication behaviour orientation.

#### 2.8.1.4.4 *Differences in language*

Having a linguistically diverse workforce in an organisation can prove to be problematic. South Africa has 11 official languages enshrined in its Constitution, among them isiZulu, isiXhosa, Afrikaans, English, Setswana, Sesotho, isiSwati, Xitshonga, Sepedi, Tshivenda and isiNdebele (South Africa 1996). The population of the Gauteng province can be perceived as multilingual, as the census of 2011 found that of its 12 075 861 residents, 8 916 713 (70.76%) spoke a mixture of indigenous African languages, 1 603 464 (13.28%) spoke English and 1 502 940 (12.45%) spoke Afrikaans (RSA Census 2011).

In a linguistically diverse country like South Africa, awareness and sensitivity to cultural communication should be intensified (Steinberg & Angelopulo 2015:129). When English is made the *lingua franca* in an organisation such as a public hospital, where English is not necessarily the first language of the workforce, various problems can occur (Kirkpatrick 2008; Martin et al 2013; Yano 2008). Language barriers may lead to a lack of support from management, poor attitudes, and dissatisfaction and demotivation among nurses in particular (Cronjé 2010:3). This “decreases work efficiency and makes communication time consuming, which increases frustration levels and decreases empathy, approachability and confidentiality” (Hussey 2013).

For the purposes of this study, and therefore with regard to supportive communication, three major language problems could be regarded as barriers to effective communication, namely, *unwillingness to communicate*, *acceptance of a lesser quality of communication* and *perceived lack of intelligence*.

Many employees (including operational managers and professional nurses) are not proficient in English (Lutakwa 2012: 38), although they are forced to use English to convey messages, which may lead to receivers not being reached by the intended communication if other interventional steps are not taken (Greeff 2010:160), such as following up verbal messages with written communication. The forced user may become unwilling and decide not to use English. De Swardt (2012:87-88) found, in her study on the professional socialisation of student nurses in the public hospital setting, that student nurses complained about professional nurses not using English as the official language during professional socialisation, while Klerk (2010:49, 79) found that professional nurses, especially foreign professionals, experienced language as a barrier in public hospitals, particularly with regard to patient hand-over sessions.

If professional nurses do, however, bring themselves to communicate in English, Jenkins (2009:203) warns that an attitude of “anything goes” might develop between these professional nurses who see the *acceptance of a lesser quality of communication* in this language. This *laissez-faire* attitude towards communication and the *lingua franca* is again problematic for communication within public hospitals, as the advancement of information quality requires understanding by the recipient, which in turn, could potentially advance the communication climate of the organisation – or *vice versa*. Closely linked to the *acceptance of a lesser quality* of the English language is *perceived lack of intelligence*.

Non-native English speakers might be perceived as illiterate or less intelligent due to their slighter grasp of and expression in the English language (Bates 2009:15; Weyant 2007:703). Applying this unbecoming perception to the health service setting, Hussey (2013:193) states that some professionals may even perceive as illiterate their colleagues who are actually literate and fluent in various languages (especially vernacular languages), just not in the “dominant language”, English.

According to Huber (2014:112) *intraprofessional* communication in nursing practice is problematic. Differing cultures of professional nurses also result in the interaction of different languages in public hospitals, further complicated by the use of *medical language* and English being implemented in all South African health services as the only official language. Various studies found that vernacular (African) languages are spoken by most professional nurses in South African public hospitals, whereas English is the mother tongue of only a very small number of professional nurses (De Swardt 2012:119; Hussey 2013:190; Wagner 2013:86).

An unequal schooling system before 1994 in terms of the level and quality of education in South Africa caused the majority of black people not to receive adequate education. In contrast, the majority of white English-speaking and Afrikaans-speaking South Africans enjoyed an education system far superior to that found in many African countries (Bantu Education 2014; South Africa info 2014). As many black professional nurses were trained before 1994 under the aforementioned unequal schooling system, without books and proper classroom facilities, it is not uncommon to find that black professional nurses favour a manager-dominated type of communication. White professional nurses on the other hand, might prefer a more cooperative, supportive type of communication climate. Black nurses entering the profession have to adapt to and internalise the sub-culture of nursing and the professional role, use technical terminologies and operate technological apparatus and equipment, in a language (English) that is not their own.

#### 2.8.1.4.5 *Differences in gender*

In situations where disparity is large and status distinctions are emphasised, individuals are incapable of hearing intended messages, face-to-face contact is avoided, information is withheld and the intended meanings of the words in messages are distorted (Benjamin 2014). One such situation is the disparity in the cultural status of men and women in South Africa. Even today, the socio-cultural status awarded to women still differs from culture to culture. According to Mellish et al (2010:29), this phenomenon also spills over into the nursing profession, in that “the status of women in a community, at present or in the past, directly affects the development of nursing and the type of nurse that emerges” (Mellish et al 2010:29). It can therefore be assumed that if women are assigned a low status in a community, it is clear that nursing in such a community, being predominantly female, will subsequently also be an unrecognised or under-developed profession.

Due to differences in socialisation, men and women tend to speak and act differently (Steinberg 2007:152-153). Women tend to use communication to establish or maintain relationships, to learn from others and to share, whereas men tend to use communication in an instrumental way – to accomplish goals. Furthermore, men tend to be more abstract, conceptual, general, theoretical and less personal than their female counterparts and are thus conditioned to assume a more direct and forceful approach to speaking, while women use a quieter, less forceful approach (Steinberg & Angelopulo 2015:127-128). Both genders, however, possess an ability to speak forcefully, directly and questioningly (Trenholm 2011:87-88).

Democracy has led to the emancipation and empowerment of especially black women in South Africa. Access to a wider nursing spectrum led to black nurses filling positions in previously inaccessible areas of nursing. Top nursing positions are gradually filled by more and more black women (and men) (Breier et al 2009:100). Executive positions in health services are, however, still mostly filled by males. It seems as though men have a political agenda for entering the nursing profession, according to Breier et al (2009:100). The latter is a worrying tendency, as politics does not ascribe to the core nursing value of caring. All aspects relating to caring are important, to maintain the quality of care in the nursing profession (Muller 2009:20; Koen 2010:95). The fact that more males than females are in managerial positions, is significant in that, as already determined, males communicate different from females. Furthermore, De Swardt (2012: 89) found that male nursing students reported not being directly assigned nursing tasks by some female professional nurses due to cultural beliefs regarding gender. This is an undesirable situation, as it could lead to miscommunication between professional nurse and student, in that the details of a message might be lost due to this indirect line of communication.

Statistics indicate that the majority of professional nurses registered at the South African Nursing Council (SANC) are female (SANC 2014) and the highest number of male professional nurses only constitute a small proportion of professional nurses (mainly concentrated at the level of Enrolled Nursing Auxiliary (Moodley 2011:71)). Most male students, according to Breier et al (2009:19-20), are attracted to the nursing profession because of the sizeable bursaries offered and future professional study prospects. For this reason the numbers of male students registering for professional nurse programmes at Nursing Education Institutions are increasing.

Males are generally regarded as less expressive of their affection and caring, in contrast to females who are perceived to be emotional and caring beings, and more expressive (Brown 2009:127; Reinecke 2014:95). However, the evidence is not enough to assume that, with regard to communication, females would be viewed as being more liberally expressive in their emotion and caring than their male counterparts.

## **2.8.2 Institutional barriers**

The institutional barriers to a supportive communication climate include the differences between the various institutions as a whole and the difference between the various units/departments of a specific institution (Bezuidenhout 2014c:203; Ferreira et al 2009:106; Nel, Kirsten, Swanepoel, Erasmus & Poisat 2008:30; Rothwell 2013:22).

### **2.8.2.1 Differences between institutions**

Different institutions have different cultures, hierarchical levels, managerial authorities and communication systems. Cultures everywhere vary relational rules along the two dimensions of *individualism* and *collectivism*, in an effort to strike a balance between individual identity and power allegiance and control (Rothwell 2013:22). A collectivistic culture places more emphasis on a highly developed social identity and all the members in the group are expected to act in a way that benefits the whole group. In contrast, an individualistic culture motivates a highly differentiated identity, where individuals acting in a way that will benefit only them, are perceived as normal (Rothwell 2013:22). All members of a group have both an individualist and a collective identity and need to create a balance between the two.

Health care services (public hospitals) have a distinct organisational culture, different from that of other types of organisations, in that their main goal is to promote health in those that they serve. Beliefs, values and attitudes of the staff determine the culture in a public hospital. These traits are culturally defined (Spencer-Oatey 2008: 3) and express cultural codes and social circumstances (Spencer-Oatey 2012:8). If these are negative they might be detrimental to goal achievement.

The tone and style of communication appear to be linked to the hierarchical structure of a health service and the status of its professionals (Longman 2013:101).

One of the roles of structure is to provide clarity with regard to communication (Moodley 2011:92). Growing institutions have growing structures, and consequently communication has to pass through more and more hierarchical levels, requiring more time to pass a message on, causing messages to lose impact and accuracy and creating more chances for messages to fail (Ferreira et al 2009:106). Studies by Ali and Patnaik (2014), Farokhi and Murty (2014) and Newman (2010) reveal that the structure of an organisation can influence the perceptions that employees have of their work climate, and “the more workers an organisation has and the more diffuse its operations and sites are, the more difficult it is to establish sound communications between management and workers” (Nel et al 2008:30). In the hierarchical structures of public hospitals there are many levels of authority (as illustrated in Figure 2.1, see section 2.3.2.2). Hierarchical levels can cause distortion of messages as information travels between the different levels.

Regarding managerial authority, it can be said that every organisation has someone who acts as manager, exercises authority and makes decisions. Someone acting as a manager over others can in itself causes a barrier in the process of communication. Some managers cannot admit that problems do exist, as this will place them in an unfavourable position, and likewise staff may follow suit as they also do not want to be viewed in a bad light (Ferreira et al 2009:106). The managerial systems in public hospitals can be very demanding and rigid at times. Some managers are authoritarian and allow little flexibility in the workplace (Bezuidenhout 2014d:290). This rigidity causes staff not to use initiative or take proactive steps when they are needed. Their communication efforts become one-way directed, where instructions are delegated by the manager (Bezuidenhout 2014c:198). There is no participation in a one-way directed communication system and staff will become despondent and demotivated, because the climate is one where the manager is the main communicator and staff have no voice (Koen 2010:9). The technical communication systems at the disposal of employees must be reliable and secure to communicate effectively (Westbrook, Woods, Rob, Dunsmuir & Day 2010: 683-690). The communication process can fail due to interruptions in communication networks. A disrupted telephone service (let alone a jealous person) could cause a message not to be delivered (Ferreira et al 2009:106). The communication systems in public hospitals, according to Bateman (2010), do not adhere to technological requirements and this, in itself, forms a barrier to effective communication. The major technological communication challenges in public hospitals include absent communication systems and lack of technical support.

Nevertheless, all professional nurses are subject to the same Code of Conduct for the Public Service (South Africa 2001), as prescribed by the National Department of Health. Therefore it is expected that all public hospitals will adhere to this ethical code, have similar results with regard to all the research questions and will be supportively orientated or display defensive communication orientation to the same conceptual continuums.

### **2.8.2.2      *Different types of units/wards***

Professional nurses working in different units/wards often have different experiences of their communication climates. Those working in closed units, such as operating room and intensive-care units, are often isolated from the outside world and communications are more unit-bound. In contrast, those working in open units/wards, such as out-patient, medical and surgical units, have the liberty of interacting with other units, wards and departments (Newcomb 2011; Runkel 2013; Stow 2012).

### **2.8.3      **National barriers****

The major national level barriers to a supportive communication climate in public hospitals include the lack of a clear policy and guidelines on the development and maintenance of a supportive communication climate in all Gauteng public hospitals.

#### **2.8.3.1      *Lack of a clear supportive communication policy for public hospitals***

Communication as a function is well explained in numerous National Department of Health policies and goal statements; however, nowhere in these documentation is policy explicitly described in terms of supportive communication. Existing policies are aimed at improving communication relations between the National Department of Health and the public. Therefore, there is a dire need for a clearly defined National Department of Health policy on the concept of *supportive communication*.

#### **2.8.3.2      *Lack of guidelines on the development, maintenance and assessment of a supportive communication climate in public hospitals***

Due to the absence of the aforementioned policy, there is also a lack of guidelines on the development, maintenance and assessment of a supportive communication climate in public hospitals.

This study has aimed to address this lack firstly through the development of a validated measuring instrument, and secondly through the development of guidelines towards the development of a supportive communication climate in public hospitals.

These influencing factors led to the development of research question 3, which states: *How do specific factors, such as age, tenure (period in hospital), gender, language, institution (public hospital) and type of units/wards, influence the respondents' communication behaviour orientation and the respondents' perceptions of their operational managers' communication behaviour orientation with regard to the six Gibb's conceptual continuums?*

## **2.9 CONTEXTUALISATION OF THE LITERATURE REVIEW WITHIN THE THEORETICAL FRAMEWORK**

A supportive communication climate is essential for nursing practice, as it fosters good interpersonal relationships and collaboration between all categories of nurses (Linsley 2012:61). Applying the Gibb's Defensive Communication Climate model (1961) to the nursing practice context, where operational managers and professional nurses work together in the same environment, the following scenarios between an operational manager and a professional nurse (both for example female) could be possible:

*Evaluation versus description:* The operational manager could become annoyed by the professional nurse's practice of leaving a notice board disorganised. The operational manager could resort to evaluative behaviour and call the professional nurse disorganised. In contrast, the operational manager could use descriptive behaviour and describe how or why the disorganised notice board could be problematic. However, it would still be the operational manager's problem, and not that of the professional nurse.

*Control versus problem-orientation:* The operational manager could order the professional nurse to organise the notice board right away – exercising controlling behaviour that deprived the professional nurse of the right to decide on what to do. Instead of *control*, the operational manager might use *problem-orientation* by seeking input from the professional nurse. The operational manager could ask the professional nurse what she thought would be a good way of keeping the notice board organised. In doing so the operational manager would open the possibility of shared decision-making and control.



*Strategy versus spontaneity:* The operational manager's concern for order, in the above scenario, could be due to her insecurity. This insecurity might be rooted in the fear that nurse managers, when they saw the disorganised notice board, might think that it was the operational manager, instead of the professional nurse, who was disorganised. The operational manager manipulates the professional nurse into feeling embarrassed, instead of acknowledging her own fears. If the operational manager were honest enough to disclose that she gets upset about the disorganised notice board because she is afraid that the nurse managers will notice the disorder and think that she did not attend to it, the interaction would be less defensive. By admitting her fears and being spontaneous, the operational manager would expose her integrity. The professional nurse, in turn, must now reciprocate in a supportive manner, responding in a genuine way by understanding the fears of the operational manager, requesting more information from the operational manager and then indicating a willingness to listen supportively to the operational manager. By being supportive listeners, the professional nurse and the operational manager could help each other to respond less defensively.

*Neutrality versus empathy:* Individuals demonstrate a sense of concern for others and for the individuals' relationship with them by showing empathy. If the operational manager were to follow the suggestions discussed thus far for using supportive communication, that is, to describe the problem and explore all of the feelings associated with it, the nurse might be inclined to empathise with those feelings (Gibb 1988).

*Superiority versus equality:* The operational manager should resist the impulse to argue that the more organised person is necessarily the superior one. Defensive responses are interactive. Gibb observed that when individuals feel they are being evaluated, they will sometimes respond fiercely. The professional nurse should in turn also refrain from judging the operational manager as obsessive about being organised.

*Certainty versus Provisionalism:* The idea of communicating provisionally is also applicable to the relationship between professional nurses and operational managers. When the operational manager leans towards the tendency of certainty, the operational manager will insist that the professional nurse organise the notice board right away. Examples of certainty in the sentence above are the words "insist" and "right away" and the issue of a command to the professional nurse.

Qualifying and rephrasing the statement, and requesting the professional nurse to organise the notice board when she gets a chance could change the dynamic of their relationship. Provisionalism furthermore signals a willingness to listen openly to the ideas of others (Trenholm 2011:186). When operational managers and professional nurses close themselves off from the opinions that might influence or threaten the positions that they are holding, they are not only employing dogmatic thinking but may be even confining themselves to an attitude of certainty. Responding with provisionalism instead of certainty would require the professional nurses and operational managers to be open enough to introspectively assess their own personal preconceptions.

Cyphert and Wurtz (2009) claim that assessing communication, in any context, must be useful. "Assessment of professional communication must account for dynamic, complex behaviours that represent specific skills as well as strategic use of conceptual understanding performed within a specific context of organisational goals" (Cyphert & Wurtz 2009). The researcher therefore argues that in order to achieve meaningful assessment, an appropriate measuring instrument is required to assess the specific skills and strategic use of conceptual understanding (in the present study referring to the communication climate focus) in a specific context (public hospitals) of organisational goals (supportive communication during all interactions) based on the Gibb's conceptual model. In agreement with Gibb (1988), and related to this current study, it is also the viewpoint of the researcher that all the concepts contained in the supportive poles of the six continuums of Gibb's Defensive Communication Climate Paradigm (1961) are interrelated and pertain to the nursing context, for the following reasons:

- Description allows public hospitals to create a climate that supports mutual respect and understanding.
- Problem Orientation makes provision for the collaboration and cooperation of all professional nurse categories.
- Spontaneity promotes a communication climate that is open and honest.
- Empathy promotes caring among all staff engaged in interpersonal relationships.
- Equality provides a platform for nurses to discuss issues with operational manager without the threat of judgement or criticism.
- Provisionalism enables all nurse communicators to behave in a considerate and tentative manner when interacting with others and with each other.

In conclusion, if all the concepts contained in the supportive poles of the Gibb's Defensive Communication Climate Theory (1961) are utilised optimally in public hospitals, a supportive communication climate can be developed and maintained to accommodate all professional nurses and to the benefit of all stakeholders.

## **2.10 CONCLUSION**

This chapter discussed literature supporting the Gibb's Defensive Communication Climate Paradigm (1961) with regard to the definition of a communication climate, the components, characteristics, dimensions, types, patterns, factors and the barriers influencing a communication climate. Related national and international research studies were also discussed in order to obtain background knowledge and clarification about the problem under study.

The following chapter will detail the Gibb's Defensive Communication Climate Paradigm (1961), as the theoretical and conceptual structure for the present research.

## **CHAPTER 3**

### **THEORETICAL FRAMEWORK**

#### **THE GIBB'S DEFENSIVE COMMUNICATION CLIMATE MODEL (1961)**

##### **3.1 INTRODUCTION**

In Chapter 2, the literature supporting the Gibb's Defensive Communication Climate Paradigm (1961) with regard to the definition of a communication climate, the components, characteristics, dimensions, types, patterns, factors and the barriers influencing a communication climate was discussed.

In this chapter, the Gibb's Defensive Communication Climate Paradigm (1961) will be discussed according to the conceptual framework, the theories or models related to a communication climate and the conceptual framework applied to nursing practice relationships.

##### **3.2 CONCEPTUAL FRAMEWORK**

The conceptual framework (see Figure 1.1) within which this study was conducted emanated from a literature study the researcher undertook. The conceptual framework comprises a Communication Climate Focus and six bipolar continuums that range between a defensive and a supportive communication climate. A defensive communication climate focus emphasises negative communication behaviour, and a supportive communication climate focus emphasises positive communication behaviour.

The six conceptual continuums include the Evaluation-Description, Control-Problem Orientation, Strategy-Spontaneity, Neutrality-Empathy, Superiority-Equality, and the Certainty-Provisionalism continuums. These six conceptual continuums each relate to the Communication Climate Focus continuum.

The researcher viewed this conceptual framework a suitable conceptual foundation for this study as it

- provided a network of concepts and relationships within which the research questions pertaining to this study were posed and the data generated were integrated (Brink et al 2012:26; Polit & Beck 2012:131)
- integrated the six conceptual continuums and suggested relationships to be considered in the study design (Polit & Beck 2012:131)
- provided a context for interpreting research results that might otherwise be isolated and difficult to interpret (Polit & Beck 2012:131)
- allowed for the derivation of the three research questions
- briefly summarises the main events of the communication controversy in nursing.

### **3.3 THEORIES OR MODELS RELATED TO COMMUNICATION CLIMATE**

It is important for scientific studies to utilise appropriate theoretical frameworks upon and around which a study can be built. A paradigm is a way of viewing natural phenomena which encompasses a set of philosophical assumptions that guide one's approach to enquiry (Polit & Beck 2012:720; Brink et al 2012:24). The term *paradigm*, according to Soanes et al (2009:736), refers to a typical example, a pattern or model of something.

After scrutinising the existing literature for a suitable communication climate theory or model, the researcher found only one model, the Gibb's Defensive Communication Climate Model (1961) and one dimension of the Downs and Hazen Communication Satisfaction Model (1977) applicable to the study. The primary purpose of this study was to assess the communication climate focus of professional nurses. The Gibb's Defensive Communication Climate Paradigm (1961) was identified as the most suitable framework for the purposes of this study, as it is based on the theoretical assumption that all communication relationships should be supportive and collaborative. The Gibb's Model (1961) will be discussed in detail in the following sections of this chapter. Therefore, this section will present only a brief discussion of both the communication climate dimension of the Downs and Hazen Communication Satisfaction Model (1977) and the Gibb's model.

### **3.3.1 The Downs and Hazen Communication Satisfaction Model (1977)**

*Communication climate* forms one of the eight communication satisfaction dimensions of the Downs and Hazen Communication Satisfaction Model (1977). It reflects on the satisfaction of employees in terms of general aspects of organisational communication – therefore, the general perception that the communication of the organisation creates is reflective of the communication climate of the organisation. The *communication climate* dimension explains the extent to which communication in the organisation motivates and stimulates workers to meet organisational goals and the extent to which it makes the workers identify with the organisation. It therefore measures the degree to which communications in the organisation are healthy (Roussel & Swansburg 2009:177-178).

### **3.3.2 Gibb's Defensive Communication Climate Paradigm (1961)**

Jack Gibb developed the concept of *communication climate* in 1961 (Buchanan & Huczynski 2010:227). He analysed tape recordings of discussions that had occurred in various settings over an eight year period (Gibb 1960:115-135; Gibb 1988:2) and identified six pairs of communication behaviour. Based on the interrelatedness and interactivity of these pairs of communication behaviour, Gibb was able to design the Defensive Communication Climate Paradigm (1961). He arranged the pairs of behaviour as bipolar continuums, namely: the Evaluation-Description; Control-Problem Orientation; Strategy-Spontaneity; Neutrality-Empathy; Superiority-Equality; Certainty-Provisionalism Continuums (see Figure 1.1). Behaviour which a listener perceives as possessing any characteristics of the first concept in each pair arouses defensiveness, whereas that, which is interpreted as possessing characteristics from the second concept in each pair, labelled as supportive, reduces defensive feelings. The extent to which these reactions occur is dependent on an individual's level of defensiveness and the general climate within a group at a specific time.

The aim of the Gibb's paradigm is to produce a communicator who is self-actualised; one who displays positive, supportive communication behaviour towards others. It suggests that instead of communicating with patterns of behaviour that arouse defensiveness, a corresponding set of supportive communications should be used. The six conceptual continuums contained in this paradigm reflect the principles of cohesion, support and trust. The paradigm develops collaboration and, if implemented correctly, may produce meaningful interpersonal relationships. A more detailed discussion of the Defensive Communication Climate Paradigm (Gibb 1961) will follow.

## **3.4 DESCRIPTION OF THE GIBB'S MODEL**

### **3.4.1 Evaluation-Description Continuum**

The Evaluation-Description Continuum ranges between the defensive evaluation pole and the supportive description pole. Evaluation indicates negative communication behaviour and Description indicates positive communication behaviour (Figure 3.1).

#### **3.4.1.1 Defensive (negative) communication pole**

##### **Evaluation**

*Evaluation*, refers to the most important/powerful aspect of a first impression formed of another, thus whether an individual likes or dislikes another person (James 2008; Mokhtari 2013). The evaluation of another person pervades an individual's memories of what he or she likes. Furthermore, a favourable or unfavourable impression in one context extends to most other situations and to other seemingly unrelated characteristics. In this respect, negative information seems to be more powerful than positive information. Thus, in forming an impression, special attention is paid to negative information, as negative information is weighed more heavily.

*Evaluation* consists of communication behaviour that engages in judgemental language (Czech & Forward 2013:12; Gibb 1961). Often evaluation is marked by so-called "you language" or "you messages" (Adler et al 2009:298), in which blame is placed on another person. Gibb (1988:2) elaborates, stating that speech or other behaviour which appears evaluative increases defensiveness. Thus if a sender seems to be evaluating or judging a listener through expression, manner of speech, tone of voice or verbal content, indicating disapproval of the receiver (Adams & Galanes 2012:114), the receiver will go on guard (Steinberg & Angelopulo 2015:171). Adding to this statement, Trenholm (2011:185) mentions that evaluation occurs when the comments of individuals imply appraisal and criticism of one another's behaviour. A judging message will judge rather than describe one's thoughts or feelings, arouse defence and trigger a negative response. Muller et al (2011:322) state that "when the sender or receiver [of a message] has judgemental ideas about the other person/s, or about the topic under discussion, many unjust assumptions can be made, which may lead to misunderstandings".

In the case of assumptions, the receiver interprets the meaning of the message according to what he or she 'thinks' it means, without actual proof. This may result in a distorted understanding of the real message (Bagraim et al 2011:207). Insecure individuals often place blame and view others as fitting into categories of good or bad, often make moral judgements and question the value and motives of their colleagues, affecting the value loadings (judgement of others by believing that the standards of the speaker differ from those of the receiver) of the speech which they hear. This can cause the listener to become defensive (Gibb 1988:3). Some individuals, according to DeVito (2008:264), tend to place the blame for a problem on others instead of focusing on a solution; this action does not protect either their own needs or those of others. DeVito (2008:264) explains that "whether true or not, blaming is unproductive, as it diverts attention away from the problem and from its potential solution and creates resentment that is likely to be responded to with additional resentment".

A manager who uses evaluative communication in an organisation is critical and judgemental of employees and their work, criticises them and does not accept or allow any explanation from employees (Costigan & Schmeidler 1984:112-114). *Judging* refers to behaviour where an opinion is formed about [someone or something], through careful weighing of evidence and testing of premises (*Merriam Webster* 2013). However, judging in defensive behaviour tends not to be based on evidence, but emphasises apportioning blame and making other people feel incompetent (Buchanan & Huczynski 2010:228). Uys and Middleton (2014:263), defining judgement as "the ability to assess a situation correctly and act appropriately within the situation", feel that judgement and insight (the ability to analyse situations and understand the true meanings of experiences) go hand in hand; if insight is impaired, judgement is usually also impaired. *Criticising* means "disapprovingly indicating the faults" of others, through the "expression of a critical assessment of them" (Soanes et al 2009:340). Criticising the work of others points to negative feedback, and a lot of the feedback that individuals receive is critical (see Box 3.1).

**BOX 3.1: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR EVALUATION**

The negative communication behaviour constructs identified from the literature for evaluation (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *judging the work of others; criticising the work of others and criticising another in the presence of others*. The main communication behaviour concepts extrapolated from these constructs are: *judge, criticise, label, accuse and blame* (see Figure 3.1).



### 3.4.1.2 Supportive (positive) communication pole

#### Description

*Description* refers to the providing of information instead of judging and placing blame (Buchanan & Huczynski 2010:228). Therefore, descriptive communication tends to arouse minimal uneasiness and encompasses language in which the listener can perceive the need for information (material with neutral loadings) and a real desire to understand the view of another (Gibb 1988:3). In particular, the least defence-evoking is the presentation of feelings, perceptions or processes which do not require or imply that the receiver change behaviour or attitude.

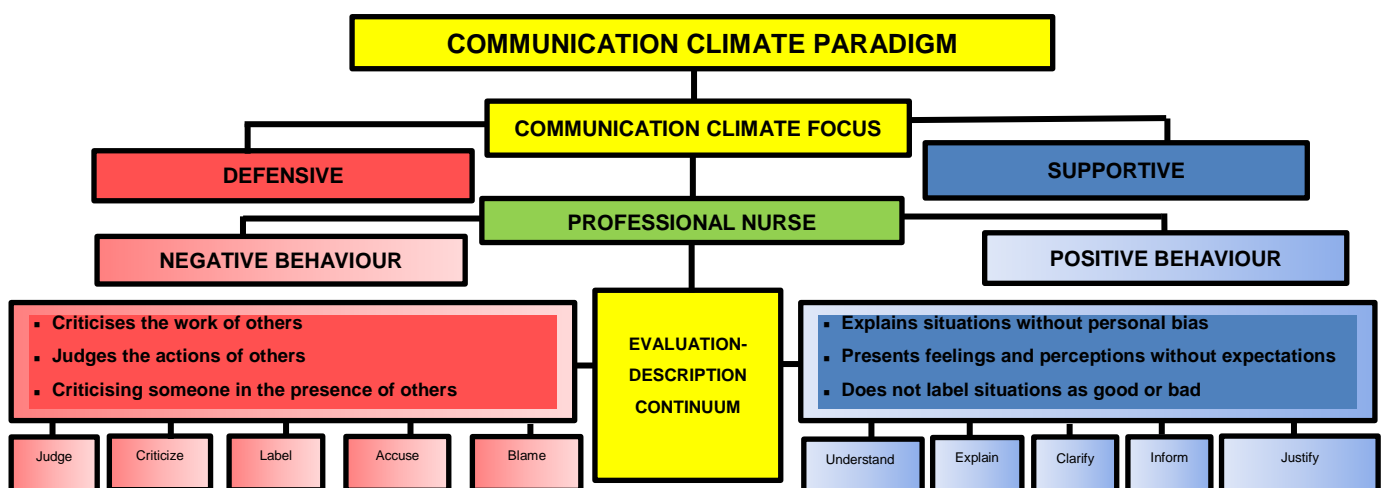
Description in communication is a desire to understand another's point of view without making it wrong (Adams & Galanes 2012:114). It is marked by the use of "I language" that places the responsibility on the sender of the message (Czech & Forward 2013:12; Gibb 1961); descriptive messages offer thoughts and feelings without judging others. They arouse little defensiveness, because they focus on presenting feelings or opinions without assigning blame; for instance, a person can express concern about a deadline by describing his or her feelings (Trenholm 2011:185). These messages are "observations that can be specific and concrete" (Adler et al 2009:298), therefore it is expected that "I" messages would be more likely to create a positive communication climate than "you" messages that are defensive. However this is not always the case; usually individuals do not like to hear negative expressions aimed at them, regardless whether "I" or "you" messages are used, hence, using "I" language in moderation is the most effective (Hajdasz 2012:32-34).

*Understanding* is defined by *Merriam Webster* (2013) as "a mental grasp or the power of comprehending, or the power to make experience intelligible by applying concepts and categories, or a friendly or harmonious relationship or an agreement of opinion or feeling; adjustment of differences". It also refers to "an elusive intuitive process whereby one succeeds in apprehending the deep significant meaning of an event, a concept, an idea, etc." (Reber et al 2009:842). Managers often forget that people are all different (Ferreira et al 2009:435).

Even if employees are treated fairly and equitably, managers should make provision for recognising and accommodating the differences that exist between them. It is therefore necessary for managers to understand and accept that people behave in different ways as a result of cultural forces; they should thus strive towards understanding the perspectives of others. Managers who utilise descriptive communication in an organisation attempt first of all to *explain* situations clearly to employees without harbouring personal bias (thus to make the situation clear, by providing more detail, and to give reasons or justifications (Soanes et al 2009:502). They also present feelings and perceptions without expecting a similar response. Finally, such managers refrain from *labelling* (“classifying name applied to a person or thing, especially inaccurately” (Soanes et al 2009:794)) situations as being either good or bad (Costigan & Schmeidler 1984:112-114) (see Box 3.2). In manager-employee communication, the communication of the manager is clear, describes the situation fairly and presents his or her perceptions without implying that there is a need for change (Costigan & Schmeidler 1984:112-114).

**BOX 3.2: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR DESCRIPTION**

The positive communication behaviour constructs identified from the literature for description (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *explaining situations without personal bias; presenting feelings/ perceptions without expecting a similar response and not labelling situations as either good or bad.* The main (communication behaviour) concepts extrapolated from these constructs are: *understand, explain, clarify, inform and justify* (see Figure 3.1).



**FIGURE 3.1: SCHEMATIC PRESENTATION OF THE EVALUATION-DESCRIPTION CONTINUUM OF THE GIBB'S DEFENSIVE COMMUNICATION CLIMATE PARADIGM**

**Source:** Adapted from Gibb, JR. 1961. Defensive Communication. *Journal of Communication* (11):141-148; Costigan, JI & Schmeidler, MA. 1984. *Exploring supportive and defensive communication climates.*

### **3.4.2 Control-Problem Orientation Continuum**

The Control-Problem Orientation Continuum ranges between the defensive Control pole and the supportive Problem orientation pole. Control indicates negative communication behaviour and Problem-orientation indicates positive communication behaviour.

#### **3.4.2.1 Defensive (negative) communication pole**

##### **Control**

*Control*, refers to expected conformity, rigidity and inhibition of change (Buchanan & Huczynski 2010:228). It is a behaviour that can increase defensiveness and occurs when members of a group try to impose their will on others (Trenholm 2011:185). It is a common occurrence that in social interaction, one person is attempting to do something to another person – to change an attitude, to influence behaviour, or to restrict the field of activity (Gibb 1988:3). Control is thus an ability to change or modify behaviour by the systematic use of applicable reinforcement or punishment (Reber et al 2009:168). The extent to which these attempts to control produce defensiveness depends on the openness of the effort. Suspicion that hidden motives exist increases resistance. Control is often marked by implicit attempts to be manipulative and the speaker may view, or appear to view, the listener as arrogant, unwise, uninformed or of possessing inappropriate attitudes (Czech & Forward 2013:12, Gibb 1961).

Control in communication is the effort that one person applies to dominate or change another person. It is also when a person insists on having things his or her way. In conversations, statements might include: "I want to do things this way, so that's what we are going to do" (Adams & Galanes 2012:114). Speech which is used to control the listener as speech evoking resistance can be classified as controlling speech. The term *controlling* refers to the use of power to influence people's behaviour or the course of events. It is also the restriction of an activity, tendency or phenomenon (Soanes et al 2009:311). Controlling occurs when a "sender seems to be imposing a solution on the receiver with little regard for the receiver's needs or interests" (Adler et al 2009:366).

Controlling messages can be viewed as an attempt to control another individual. These types of message can communicate status and create hostility, thus the resulting communication climate might be defensive and negative. The receiver of a controlling message will feel incapacitated and powerless to contribute anything of substance to the conversation because of a loss of confidence between sender and receiver (Steinberg & Angelopulo 2015:172).

The term *hostility* refers to a feeling of intense anger and resentment, exhibited by destructive behaviour (Keltner et al 2011:512), and is distinguished from anger on the grounds that anger is “a more intense and momentary reaction” whilst hostility is “a long-lasting emotional state characterized by enmity towards others” (Reber et al 2009: 355). Non-verbal communication behaviour manifests itself in gesture clusters. One of these clusters is defensiveness (hostility), which is characterised by gestures such as a rigid closed posture, arms and legs tightly crossed, eyes glancing sideways, minimal eye contact, frowning, no smiling, pursed lips, clenched fists, head down and a flat tone of voice (Buchanan & Huczynski 2010:219).

Communication could be used to maintain control and power in relational groups through the withholding of information, deliberate partial sharing of information, communicating within a specific group only, communicating in a language that others do not understand and the use of silence when a reply is required (Gardezi, Lingard, Espin, Whyte, Orser, & Baker 2009:1390-1399; Longman 2013:116).

From an organisational point of view, the controlling manager feels a need to be in charge of all situations and permanently act in an authoritarian manner in an attempt to change the employee (Costigan & Schmeidler 1984:112-114). This manager will also try to change the attitudes and behaviour of others to suit his or her own will and control how others do their work (see Box 3.3).

**BOX 3.3: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR CONTROL**

The negative communication behaviour constructs identified from the literature on control (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *trying to change the attitudes and behaviour of others; controlling how others do their work and a need to be in charge of all situations*. The main (communication behaviour) concepts extrapolated from these constructs are: *dominate; impose; modify; hostile; manipulate and restrict* (see Figure 3.2).

### 3.4.2.2 *Supportive (positive) communication pole*

#### **Problem Orientation**

*Problem-orientation* focuses on finding solutions to problems and is collaborative in nature. In the view of Erasmus, Swanepoel, Schenk, Van der Westhuizen and Wessels (2005:291), the manager who acts as helper and facilitator, discussing problems, needs, innovations and dissatisfactions experienced by employees, is a problem-solver. The main focus of such a discussion should be on growth and development and Jeong (2010:165) adds that “problems-solving entails non-evaluative brainstorming of potential solutions along with the creation of a climate for free exchange of ideas”. Problem orientated people use language that is not overtly controlling or persuasive, but instead is focused on a desire for collaboration. The sender will use language that seeks a mutual definition of the problem and will imply that there is no predetermined attitude, solution or method to impose, and is usually open to finding the best solution to a problem (Czech & Forward 2013:12; Gibb 1961). A speaker who is problem orientated tends to be non-directive and refrain from imposing on the receiver a set of values, a point of view or a problem solution. Non-controllers thus have to earn the perceptions that their motives harbour no hidden agendas (Gibb 1988:3).

According to Adams and Galanes (2012:114), problem-orientation refers to a persons’ effort to search honestly for the best solution without having a predetermined idea of what the solution should be. The problem-orientation position is indicative of collaborative behaviour (Trenholm 2011:185). Conversations may include statements such as: “What ideas do you all have about how we might solve this?” *Collaborating* refers to working jointly with others, especially in an intellectual endeavour (*Merriam Webster* 2013). Collaboration is used, according to Yoder-Wise (2010, cited by Bezuidenhout 2014e:375), when individuals have to work through difficult emotional issues that are interfering with morale, organisational growth or productivity.

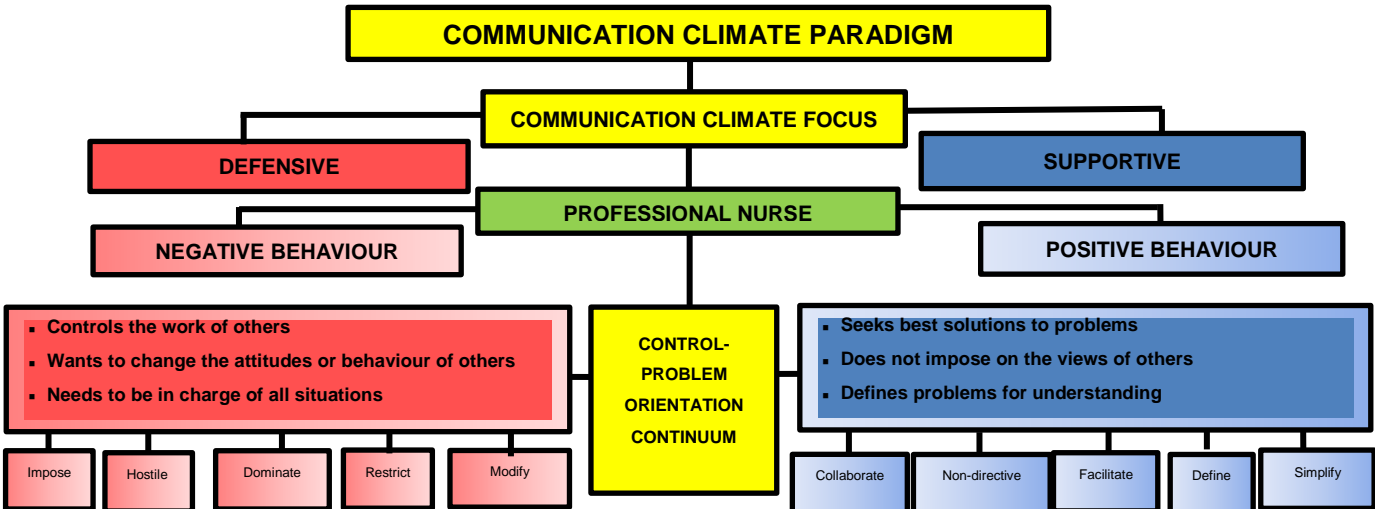
For health care providers “collaboration is an inter-professional process of communication and decision making that enables the separate and shared knowledge and skills” (Stone 2009:3). Co-operators, using collaboration, are interested in helping both themselves and their colleagues to achieve the greater good (Kneisl & Trigoboff 2009:23).

Communication enables members to urge each other to cooperate, to discuss plans, to make promises, to convince each other that they are trustworthy and to learn about each other. Therefore effective collaboration is based on respect for the position from which another person acts, accepting that the values and culture of individuals directs their beliefs and the climate in which they operate (Kneisl & Trigoboff 2009:23).

Costigan and Schmeidler (1984:112-114) state that a manager who is problem orientated will define problems instead of giving solutions, is open to discussion of problems (of a mutual nature), does not impose a set of values or point of view on others and is not insistent on agreement from the employee. The manager also seeks the inputs of the employees on problems and issues in the organisation to find the best solutions to these problems (see Box 3.4). To define a problem means to simplify the problem in order for others to understand it better. It is possible that others are unaware of the existence of problems and someone has to take the lead in making them aware of the existence of the problem in a simplified, understandable way.

**BOX 3.4: SUMMARY OF EMPIRICAL CONSTRUCTS AND CONCEPTS FOR PROBLEM-ORIENTATION**

The positive communication behaviour constructs identified from the literature on problem-orientation (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *defining problems for understanding and making others aware of them; not imposing a set of values/point of view on others and seeking the best solution to a problem.* The main (communication behaviour) concepts extracted from these constructs are: *collaborate; non-direct; facilitate; define and simplify* (see Figure 3.2).



**FIGURE 3.2: SCHEMATIC PRESENTATION OF THE CONTROL-PROBLEM-ORIENTATION CONTINUUM OF THE GIBB'S DEFENSIVE COMMUNICATION CLIMATE PARADIGM**

**Source:** Adapted from Gibb, JR. 1961. Defensive Communication. *Journal of Communication* (11):141-148; Costigan, JI & Schmeidler, MA. 1984. *Exploring supportive and defensive communication climates.*

### 3.4.3 Strategy-Spontaneity Continuum

The Strategy-Spontaneity Continuum ranges between the defensive Strategy pole and the supportive Spontaneity pole. Strategy indicates negative communication behaviour and the Spontaneity pole indicates positive communication behaviour.

#### 3.4.3.1 *Defensive (negative) communication pole*

##### **Strategy**

*Strategy*, according to *Merriam-Webster* (2013), refers to “the skill of making or carrying out plans to achieve a goal...., usually over a long period of time”. Adler et al (2009:205), Buchanan and Huczynski (2010:228) and Gibb (1961, cited in Czech & Forward 2013:12) state that strategy, as a communication behaviour, implies hidden motives and deceit, implying dishonesty and manipulation in relationships. It is natural that feeling manipulated will lead to defensiveness. When a listener perceives a sender as engaged in strategic communication, involving ambiguous and multiple motivations, the listener will become defensive, because nobody wants to be a role player, guinea pig, an impressed actor or a victim of some hidden motivation (Gibb 1988:3). In communication, strategy is the effort of a person to manipulate another person, using deceit to achieve his or her own goals. Strategic conversation statements may include: “Don’t you really think that it would be better if we did it this way?” (Adams & Galanes 2012:114). Such a message might create mistrust because it seems as if the sender is dishonest (Steinberg & Angelopulo 2015:171).

Trenholm (2011:185) claims that strategy occurs when the behaviour of group members is prompted by hidden agendas. Additionally, Adler et al (2009:205) state that strategy can occur if communicators use questions that carry hidden agendas, as the aim of such questions is not to increase understanding. On the contrary, such questions are posed strategically, as a setup for a proposal that is to follow and will provoke defensiveness as they lack any spontaneity. Hidden motives, in group context, refer to “unspoken, covert motives of the different people making up the group” (Grant & Borchers 2008:66). Often underlying motives, aspirations and needs are in direct contrast to the main goals of the group and may lead to conflict within the group; hinder progress and problem-solving.

“Hidden agendas indicate what people *really* want, as opposed to what they say they want, or are prepared to *admit* they want” (Grant & Borchers 2008:66). It is important for a group to own up to hidden motives and not to deny their existence.

*Deceiving* means to have a tendency or disposition to deceive or be dishonest (Merriam Webster 2013): an “act of causing (someone) to believe something that is not true or to give a mistaken impression (Soanes et al 2009:370). Deceitful people often betray themselves through paralinguistic expressions of nervousness, anxiety, tension and the pitch of their voices. Olah (2011), James (2008) and Mokhtari (2013) are in agreement that in face-to-face conversations, communication is influenced by the tone of the voice; the body language and the words, thus implying that non-verbal cues influence communication more than verbal cues. However, nonverbal cues are by no means enough to detect lying. Verbal cues to deceitful communication are marked by communicator gestures such as response latency (hesitation), linguistic distance (avoiding the ‘I’ word), slow, uneven speech (thinking), over-eagerness to fill gaps in conversation (constantly talking) and too many pitch raises (instead of dropping the pitch at the end of a reply) (Buchanan & Huczynski 2010:218). Nonverbal cues add to information such as whether the supposed liar has something to gain from lying, or fits the stereotype of a liar, or whether the verbal communication points to lying.

Costigan and Schmeidler (1984:112-114) view a strategic manager as someone who attempts to manipulate employees (“control or influence in a clever or unscrupulous way so as to mislead (Kneisl & Trigoboff 2009:581; Soanes et al 2009:868) to obtain what he or she wants, and often misinterprets (by the unconscious misunderstanding of a message by a receiver) or distorts or twists (by a vindictive, conscious act on the part of the receiver to discredit the sender) what is being said in conversation between him or her and employees (see Box 3.5). Misinterpretation of messages could be due to the perception basis that receivers have of the sender (Strydom 2013:32).

**BOX 3.5: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR STRATEGY**

The negative communication behaviour constructs identified from literature on strategy (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *manipulating others to make oneself to look good; misinterpreting what others are saying and twisting and distorting the words of others*. The main (communication behaviour) concepts extracted from these constructs are: *deceive, dishonest, manipulate, misinterpret and hide* (see Figure 3.3).



### 3.4.3.2 *Supportive (positive) communication pole*

#### **Spontaneity**

*Spontaneity* is explained by Gibb (1961, cited in Czech & Forward 2013:12) as directness (with a direct, frank, candid or straight manner) (*Dictionary.com*), or straightforwardness (honesty, openness and being easy to do or understand) (Soanes et al 2009:1424) and honesty (behaviour that is free of deceit and which is truthful, sincere and genuine (Soanes et al 2009:683). *Spontaneity* results in consistent, genuine and transparent communication.

Direct communication occurs when a person says exactly what he or she means without any implied meaning, insinuation or mixed message (Gregson 2010). In communication, straightforwardness means talking to others in a direct manner. Thus, spontaneity in a communication context refers to the honest, open and free reaction of a person. Spontaneous conversations may include statements like: “I really like that, and here is something else we can do...” (Adams & Galanes 2012:114).

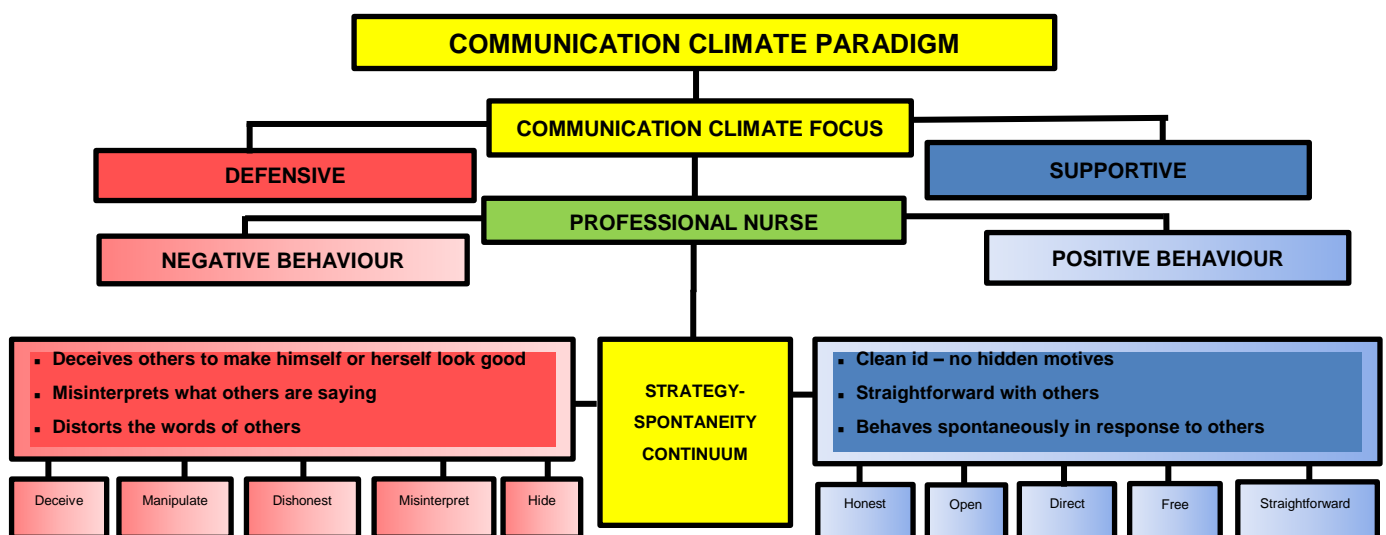
*Honesty* is viewed by Rothwell (2013:31) as one of the most important value standards for judging moral correctness of human behaviour. *Honesty* and *openness* influence the development of interpersonal relationships, because honesty implies that individuals can “say what they mean, what they think and what they feel”, and openness is an “individual’s ability to communicate what they think and feel without fear of censure, ridicule and retaliation” (Molepo 2008:173). Honesty is essential in leadership (Bezuidenhout 2014d:300). It underlies the dimensions of trust: integrity, loyalty, competence and openness (Robbins et al 2009:75). In communication, honesty points to a communicator telling the truth and steering clear of lies and gossip. Spreading malicious gossip, to undermine other group members in an attempt to enhance the gossiper’s own status indicates dishonesty. It is equally dishonest to promise group members important information while having no intention of providing it to them (Rothwell 2013:31).

Spontaneous responses to problems disclose true feelings and motives. Defence-reductive behaviour is behaviour that appears to be spontaneous and free of deception. A speaker will in all probability arouse minimal defensiveness in a listener if he or she is perceived as having a clean id and uncomplicated motivations, as being straightforward and honest and behaving spontaneously in response to the situation (Gibb 1988:4).

When using spontaneity in an organisational setting, managers should be honest and direct with their employees (Bezuidenhout 2014c:201). Such managers have a clean id, are straightforward with others and act spontaneously in response to situations. Managers using spontaneous communication behaviour communicate in an honest manner with employees, use speech that is free of hidden motives and allow employees to express their ideas freely (Costigan & Schmeidler 1984:112-114) (see Box 3.6).

**BOX 3.6: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR SPONTANEITY**

The positive communication behaviour constructs identified from the literature on spontaneity (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *having a clean id – harbouring no hidden motives; being direct and straightforward with others and behaving spontaneously in response to situations.* The main (communication behaviour) concepts extrapolated from these constructs are: *honest; open; direct; free and straightforward* (see Figure 3.3).



**FIGURE 3.3: SCHEMATIC PRESENTATION OF THE STRATEGY-SPONTANEITY CONTINUUM OF THE GIBB'S DEFENSIVE COMMUNICATION CLIMATE PARADIGM**

**Source:** Adapted from Gibb, JR. 1961. Defensive Communication. *Journal of Communication* (11):141-148; Costigan, JI & Schmeidler, MA. 1984. *Exploring supportive and defensive communication climates.*

### 3.4.4 Neutrality-Empathy Continuum

The Neutrality-Empathy Continuum ranges between the defensive Neutrality pole and the supportive Empathy pole. Neutrality indicates negative communication behaviour and Empathy indicates positive communication behaviour.

#### 3.4.4.1 *Defensive (negative) communication pole*

##### **Neutrality**

*Neutrality* can be best described by the word *indifference* (Adler et al 2009:205). When individuals do not perceive themselves as valuable they might experience feelings of indifference. A lack of interest in the challenges of others points to uncaring behaviour. To be uncaring means not to display sympathy or concern for others or not feel interest in or attach importance to something (*Oxford English Dictionary* 2017). When individuals respond with neutrality, they signal that they dismiss or are indifferent to the feelings of others (Gibb 1988:4). Although the concept of neutrality sounds positive, it can signal indifference and a lack of commitment. Neutrality reflects lack of caring, where there is a detachment from others and little concern for others is evident (Buchanan & Huczynski 2010:228).

*Neutrality* in communication refers to a person's not caring how other group members feel (Adams & Galanes 2012:114). Statements in neutral conversations may include: "I do not have time to listen to your troubles right now; I have work to do." Thus the speaker shows a lack of concern for the listener's welfare (Gibb 1961 cited in Czech & Forward 2013:12). Communication that displays low affect, indifference and little warmth or caring is often viewed as rejection (Steinberg & Angelopulo 2015:172), and a receiver of such a message might become defensive. All group members have the desire to be perceived as valued, as having special worth and as objects of concern and affection (Gibb 1988:4); human beings express their feelings through verbal and non-verbal messages.

The term *indifferent* refers to having no particular interest, sympathy, or concern and to be “neither good nor bad, thus the mediocre” (Soanes et al 2009:724). The term is used synonymously with neutrality, a state when one has no preference between alternative choices or courses of action (Reber et al 2009:377). An indifference point is the value on some continuum or dimension that represents neutrality.

At group level, conflict is the most commonly mentioned organisational behaviour variable in various studies (Bagram et al 2007; Colquitt, Lepine & Wesson 2009; Kreitner & Kinicki 2010; Lutthans 2011; Martin & Martin 2010; Newstrom 2011; Strydom 2013). Thus conflict plays an important role in most organisational behaviour at group level, and must not be overlooked during any study on communication behaviour. In an organisational situation, a manager communicating from a *neutrality* perspective will show a lack of interest in the problems of others, will become involved in conflicts and will offer minimal support to employees and seem uninterested in their personal problems and conflicts (Costigan & Schmeidler 1984:112-114) (see Box 3.7).

**BOX 3.7: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR NEUTRALITY**

The negative communication behaviour constructs identified from the literature on neutrality (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *lacking interest in the problems of others; becoming involved in conflicts and rarely offering support during crises*. The main (communication behaviour) concepts extrapolated from these constructs are: *indifference; disinterest; unconcern; uncaring and detached* (see Figure 3.4).

**3.4.4.2 Supportive (positive) communication pole**

**Empathy**

*Empathy*, according to Buchanan and Huczynski (2010:225), refers to an ability to recognise and understand the emotional make-up of others and a skill in dealing with the emotional responses of others. It thus relates to caring, with an emphasis on understanding (Buchanan & Huczynski 2010:228). Empathy also refers to “thinking and feeling what you perceive another to be thinking and feeling” (Czech & Forward 2013:12). The term *empathy* is used by Gibb (1988:4) in contrast and opposition to the term neutrality. Empathy is expressed through supportive communication, carrying respectful and caring messages, and it is useful in creating supportive communication climates.

When individuals respond to others with empathy, they signal that they acknowledge and accept the feelings of others, because “communication that conveys empathy for the feelings and respect for the worth of the listener is particularly supportive and defence reductive” (Gibb 1988:4). Empathy in communication refers to a person showing by words and actions that he or she cares about other members of a group (Adams & Galanes 2012:114; Hajdasz (2012:37). An empathetic statement during a conversation might be: “You have been having a difficult time. Are you managing? Is there anything we can do to assist you?” By using empathy, individuals can indicate to others that they do not necessarily agree with them (Steinberg & Angelopulo 2015:172), but understand their thoughts and feelings, by applying paraphrasing responses to indicate concern (Trenholm 2011:185-186). Thus, empathy indicates the accepting of the feelings of another person and placing oneself in the place of another (Adler et al 2009:205). When messages indicate that the sender identifies with the listeners’ problems, shares their feelings and accepts their emotional reactions at face value, the messages result in reassurance.

Spontaneous facial and bodily evidences of concern (used as cues in communicating empathy) are interpreted as valid evidence of deep-level acceptance (Gibb 1988:4). The degree to which messages explicitly acknowledge, elaborate upon, legitimise and contextualise the feelings and perspective of others is conceptualised as *verbal person-centeredness* (Morgan 2013:6). Recent studies have shown the value of *verbal person-centred* communication (Bodie, Burleson & Jones 2012; Bodie, Burleson, Gill-Rosier, McCullough, Holmstrom, Rack, Hanasono & Mincy 2011; Morgan 2013). *Low person-centred* messages ignore the feelings and perspectives of receivers and instead criticise them, even suggesting how receivers *should* feel about a situation. *Moderate person-centred* messages recognise and address the receivers’ feelings, offering sympathetic expressions or explanations for the situation at hand. *High person-centred* messages explicitly recognise and legitimise the feelings of the receiver and assist the receiver to articulate those feelings, elaborate reasons why they are present and explore how those feelings fit within a broader context (Bodie et al 2011:228-247). It is therefore assumed that *high person-centred* messages are the most effective at improving receiver affect, producing a successful supportive outcome (Bodie et al 2012:1-22; Morgan 2013:22).

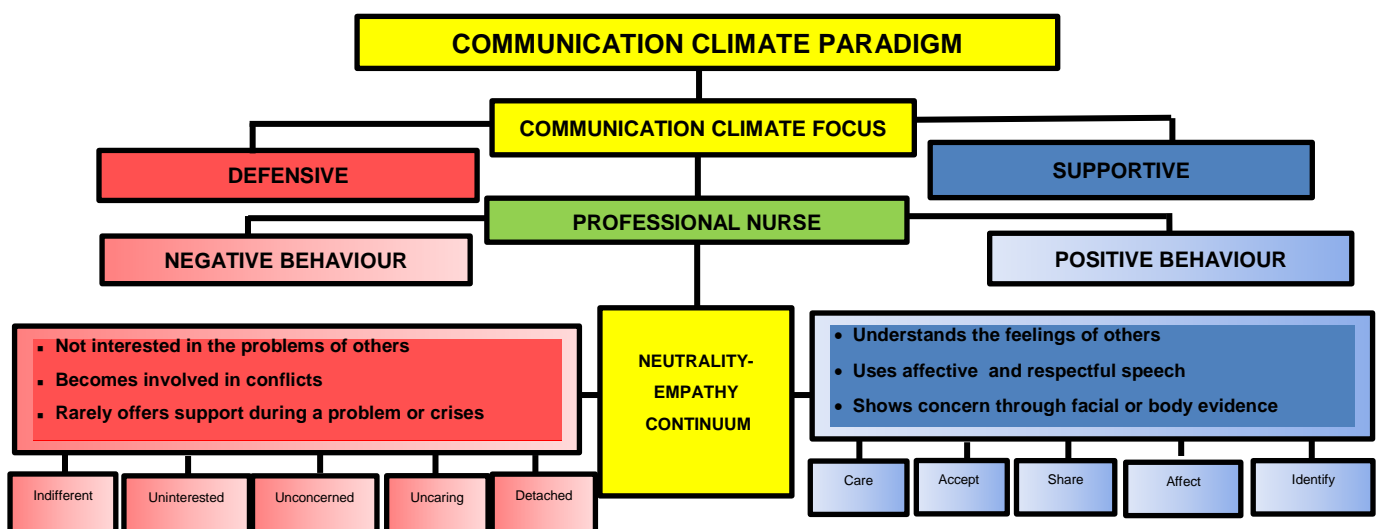
*Caring* indicates a display of kindness and concern for others (*Oxford English Dictionary* 2017).

Caring is a human process involving the cognitive, affective and psycho-motor aspects of the human-to-human caring process (Van der Wal, cited in Pera & Van Tonder 2011:11-22). Muller (2009:3;345) and Koen (2010:2;95) emphasise that nurses proclaim caring as the hallmark of the nursing profession. If this is true, it is important to maintain the quality of care in the profession, not only in deed but also in word. Yet, in their discussion of the relationships among South African nurses, Breier et al (2009:101) found that although nursing is still being perceived as a *caring* profession, South African nurses are *poisonous* in their behaviour towards one another, ascribing their poor behaviour to aspects such as culture differences.

In an organisational context, Costigan and Schmeidler (1984:112-114) view the empathetic manager as one who tries to understand and listen to the problems of employees and also respects and values their feelings. Such a manager will use speech that is affective and respectful in nature, share the problems and feelings of others and use spontaneous facial and bodily evidence to show concern for others (see Box 3.8).

**BOX 3.8: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR EMPATHY**

The positive communication behaviour constructs identified from literature regarding empathy (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *using speech that is affective and respectful; sharing the problems and feelings of others and using spontaneous facial and body evidence to show concern.* The main empirical (communication behaviour) concepts extrapolated from these constructs are: *care; accept; share; affectionate and identify* (see Figure 3.4).



**FIGURE 3.4: SCHEMATIC PRESENTATION OF THE NEUTRALITY-EMPATHY CONTINUUM OF THE GIBB'S DEFENSIVE COMMUNICATION CLIMATE PARADIGM**

**Source:** Adapted from Gibb, JR. 1961. Defensive Communication. *Journal of Communication* (11):141-148; Costigan, JI & Schmeidler, MA. 1984. *Exploring supportive and defensive communication climates.*

### 3.4.5 Superiority-Equality Continuum

The Superiority-Equality Continuum ranges between the defensive Superiority pole and the supportive Equality pole. Superiority indicates negative communication behaviour and Equality indicates positive communication behaviour.

#### 3.4.5.1 *Defensive (negative) communication pole*

##### **Superiority**

*Superiority* refers to a higher-ranking status or quality, conceited arrogance or a higher position (Soanes et al 2009:1446); however, the average person does not have a superiority complex or a sense of superiority (Manamela 2013a:23). Superiority in communication refers to persons who maximise their status differences and who misuse their rank when dealing with other members of a group. Misuse of rank is achieved through the misuse of a title, wealth and/or expertise. Statements in a superiority conversation might include: "As the chair of this committee, I do believe that I have the final say and the final decision on how we do this" (Adams & Galanes 2012:114). Adler et al (2009:205) add that superiority occurs when messages imply that the speaker is better than everyone else.

A person can arouse defensive behaviour in others by communicating that he or she feels superior in position, power, intellectual ability, wealth, physical characteristics, or other aspects (Gibb 1961, cited in Czech & Forward 2013:12). Whichever one of these evokes feelings of inadequacy in the listener causes the listener to concentrate upon the affect loading of the statement, and not on the cognitive elements (Gibb 1988:4). The receiver consequently reacts by not hearing the message, forgetting the message, competing with the sender or becoming jealous of the sender. An individual perceived as superior will communicate his or her unwillingness to engage in a collective problem-solving relationship and lack the desire for feedback or the need for help. He or she will also, very probably, attempt to reduce the power, status/worth of the receiver.

The concept of *status* is defined by Levi (2010), cited in Bagraim et al (2011:175) as a socially defined position or rank given to team members by others; it is usually associated with power, thus valued by others.

Status is important, according to Werner (2006:360), because it is a motivational factor and it influences the behaviour of those individuals who experience incongruence between what they believe their status is and what they believe others perceive their status to be. Status may be formal or informal and is awarded to individuals according to *scalar status* (a formal position a person holds in a group, such as a manager); *functional status* (earned by an individual due to the task this individual has to fulfil in the group); *achieved status* (earned by the individual through hard work and effort); or *ascribed status* (inborn characteristics over which the individual has limited or no control, such as gender and age) (Werner 2006:360). *Status differences* refer to status as position or rank in relation to others, or relative rank in a hierarchy of prestige; and difference as a characteristic that distinguishes one from another or from the average (Merriam Webster 2013). Differences in status can cause mistrust, as lower-status employees can be intimidated by upper-status job titles, grand offices and manager reputations (Bagraim et al 2011:208). In order to be successful in this area, people with superior skills should steer clear of an attitude of superiority, as they have a choice to express messages of equality instead of messages of superiority (Gibb 1961:141).

Bagraim et al (2011:207) and Wild (2010:27) state that power and organisational hierarchy pose status differences between manager-employee pairs. Employees tend to distort upward communication because of their dependence on the manager as the primary link to the organisation and their desire to promote their own interests. Because of their power, managers often give orders to employees without checking whether the employee has understood the meaning of the instruction. In an organisational situation, Costigan and Schmeidler (1984:112-114) state that the manager using superiority will constantly make others feel inadequate or inferior, make others aware of his or her higher status as manager and remind the employee who is in charge, because such a manager believes that only he or she can do the work (see Box 3.9).

**BOX 3.9: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR SUPERIORITY**

The negative communication behaviour constructs identified from literature pertaining to superiority (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *making others feel inadequate or inferior; making others aware of higher status and believing that only he or she can do the work right*. The main (communication behaviour) concepts extracted from these constructs are: *unwilling; arrogant, incongruent, self-important and powerful* (see Figure 3.5).



### 3.4.5.2 *Supportive (positive) communication pole*

#### **Equality**

Gibb (1961) draws the connection between treating another person as an equal by expressing mutual trust and demonstrating genuine openness to his or her views. Being willing to listen to another person's ideas is a part of the supportive behaviour of being problem oriented. *Equality*, according to the *Oxford English Dictionary 2017*, is defined as “the state of being equal” and equal is defined as being the “same in quantity, size, degree, value or status and evenly and fairly balanced (Soanes et al 2009:335).

Equality, or an egalitarian view, refers to a situation where everyone is valued regardless of role or status (Buchanan & Huczynski 2010:228). Equality thus implies the basic human right of all people to be treated in the same way, in every aspect of life, be it social, psychological, physical or spiritual, regardless of what differences exist among them.

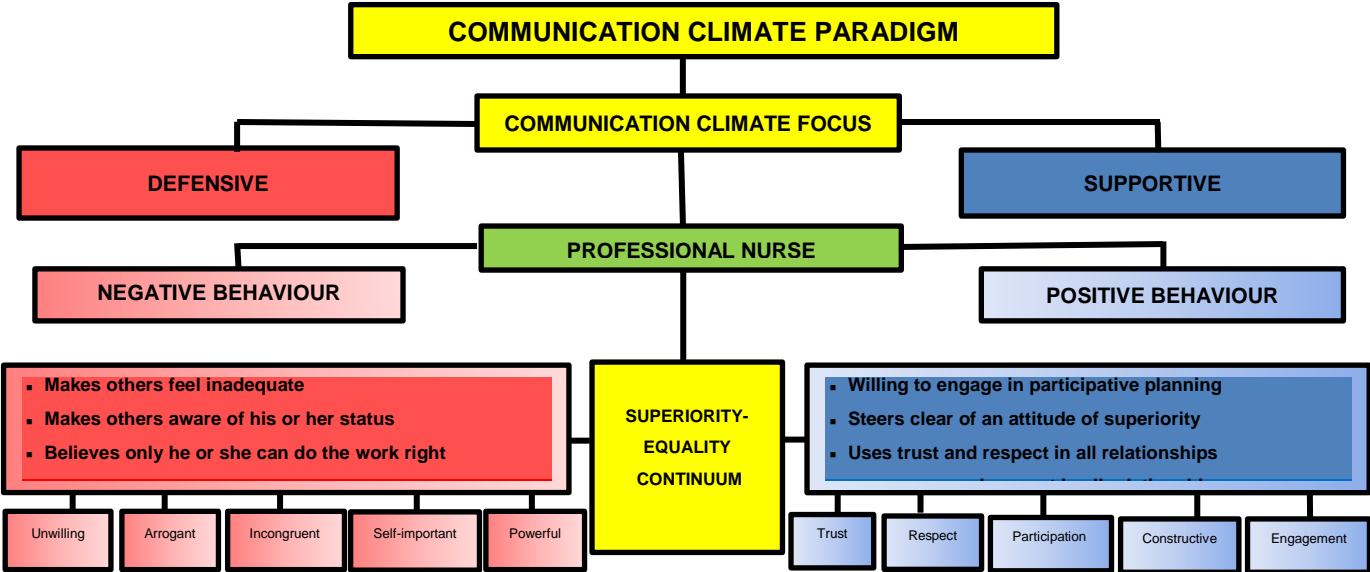
Equality has the potential to create positive communication climates, as the ideas that are shared are not evaluated according to who shared them, but according to how constructive they are (Adler et al 2009:205). For example, when a sender is perceived as willing to engage in participative planning with mutual trust and respect, defences are reduced (Gibb 1988:4). The term *trust*, (extensively used throughout this thesis) signifies genuineness and empathy (Linsley 2012:70), and the term *respect* can be defined as a feeling of admiration for someone elicited by their qualities or achievements, and thus a due regard for the feelings or rights of others (Soanes et al 2009:1225).

Additionally, equality in communication refers to a person who minimises differences in status by treating everyone as an equal and valued contributor. Statements in an equality conversation might include: “I know I’m the chair, but the solution belongs to the whole committee, so do not give my ideas any more weight than anyone else’s” (Adams & Galanes 2012:114). A communicator who values equality asks the opinions of others and weighs everyone’s opinions or contributions (Trenholm 2011:186). Differences in ability, worth, appearance status and power do exist; however, the lower defence communicator will attach little importance to these diversities.

Equality in the context of an organisation (or workplace) means that all individuals in the organisation have the same value, irrespective of the different positions of power they might hold in the organisation (Rasetsoke 2012:21). The egalitarian manager attempts not to make employees feel inferior, avoids status to control situations, respects the position of others and treats others as his or her equal (Costigan & Schmeidler 1984:112-114). Such a manager is willing to engage in participative planning, uses mutual trust and respect in all relationships and steers clear of an attitude of superiority (see Box 3.10).

**BOX 3.10: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR EQUALITY**

The positive communication behaviour constructs identified from literature on equality (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *willingness to engage in participative planning; using mutual trust and respect in all relationships and steering clear of an attitude of superiority.* The main (communication behaviour) concepts extracted from these constructs are: *trust; respect; participation; constructive and engagement* (see Figure 3.5).



**FIGURE 3.5: SCHEMATIC PRESENTATION OF THE SUPERIORITY-EQUALITY CONTINUUM OF THE GIBB'S DEFENSIVE COMMUNICATION CLIMATE PARADIGM**

**Source:** Adapted from Gibb, JR. 1961. Defensive Communication. *Journal of Communication* (11):141-148; Costigan, JI & Schmeidler, MA. 1984. *Exploring supportive and defensive communication climates.*

### 3.4.6 Certainty-Provisionalism Continuum

The Certainty-Provisionalism Continuum consists of the defensive Certainty pole and the supportive Provisionalism pole. The Certainty pole indicates negative communication behaviour and the Provisionalism pole indicates positive communication behaviour.

#### 3.4.6.1 *Defensive (negative) communication pole*

##### **Certainty**

According to Buchanan and Huczynski (2010:228), *certainty* implies a dogmatic point of view where little discussion takes place, and an unwillingness to accept the views of others or to compromise prevails. It refers to a condition in which managers feel they possess full knowledge of alternatives, a high probability of having these alternatives available, the ability to calculate the cost and benefits of each alternative and a high predictability of outcomes (Buchanan & Huczynski 2010:726).

Individuals communicating with certainty send messages implying that they are right, that their way is the only way and that they require no further information on a matter. They use terms such as *can't*, *never* and *always*. Individuals who stick to their opinions with certainty (disregarding the views of others) tend to communicate a lack of interest in what others perceive to be important (Adler et al 2009:205; Gibb 1961:141). Others may interpret such certainty as offensive, leading them to respond defensively (Hajdasz 2012:38-39). Against this, Ferreira et al (2009:410) argue that certainty should not be viewed as an exclusively negative behaviour, because if the outcome of a specific decision is known, consequences and events can indeed be controlled and predicted to a certain extent.

Statements made in certainty conversations might include: "I know exactly what we ought to do here, so I will take care of it" (Adams & Galanes 2012:114). They are used by a person who is a *know-it-all*, and who thinks that his or her ideas are the only correct ones. Trenholm (2011:186) warns that a great sense of certainty can lead to an unpleasant group climate; Manamela (2013b:23) is of the opinion that a know-it-all type of individual is very unpopular. She elaborates by stating that being humble and learning from ones' own mistakes is one of the best qualities a leader can possess.

Listeners often perceive dogmatically manifested expressions of certainty as implying inward feelings of inferiority on the side of the speaker. In this perception the speaker is viewed as someone who is in need of being right, wanting to win an argument instead of solving a problem, and needing his or her ideas to be defended (Gibb 1988:5). Such speakers have uncompromising attitudes that equate to “sticking to an opinion, purpose, or course of action in spite of reason, arguments, or persuasion” (*Merriam Webster* 2013) and an unwillingness to settle disputes by mutual concession (Soanes et al 2009:295), causing a one-sided, unbalanced communication situation (Steinberg & Angelopolu 2015:171).

The term *dogmatic* describes an inclination to assert principles or opinions as incontrovertibly true (Soanes et al 2009:422). The term is also an adjective marked by the forceful expression of strongly held opinions (*Merriam Webster* 2013). From a behavioural perspective, Kneisl and Trigoboff (2009:32) view dogmatic beliefs as opinions or beliefs held as if they are based on the highest authority. Dogmatic beliefs are often blind and irrational beliefs not based on personal experiences. Operating on the grounds of *dogmatic* beliefs often causes individuals to distort their personal experiences of the world to fit their own preconceptions (Kneisl & Trigoboff 2009:32). Certainty is defined as dogmatic, single-minded behaviour which is combined with an unwillingness to compromise (Gibb 1961, cited in Czech & Forward 2013:12). The effects of dogmatism in producing defensiveness are well known, such as putting others on guard against those individuals who seem to know everything, who require no additional information and who regard themselves as instructors rather than as co-workers (Gibb 1988:5).

Costigan and Schmeidler (1984:112-114) claim that managers who practise certainty in their communications with employees are dogmatic, unwilling to admit that they can make mistakes, think that they are always right and do not accept views that are in opposition to their own points of view (see Box 3.11). Consequently, conflict can arise between interacting individuals that hold opposing views about an issue (West 2012:193).

**BOX 3.11: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR CERTAINTY**

The negative communication behaviour constructs identified from the literature on certainty (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *inability to admit to making mistakes; thinking that one is always right and not accepting opposing points of view*. The main (communication behaviour) concepts extrapolated from these constructs are: *dogmatic; uncompromising; self-righteous; infallible and single-minded* (see Figure 3.6).

### 3.4.6.2 Supportive (positive) communication pole

#### Provisionalism

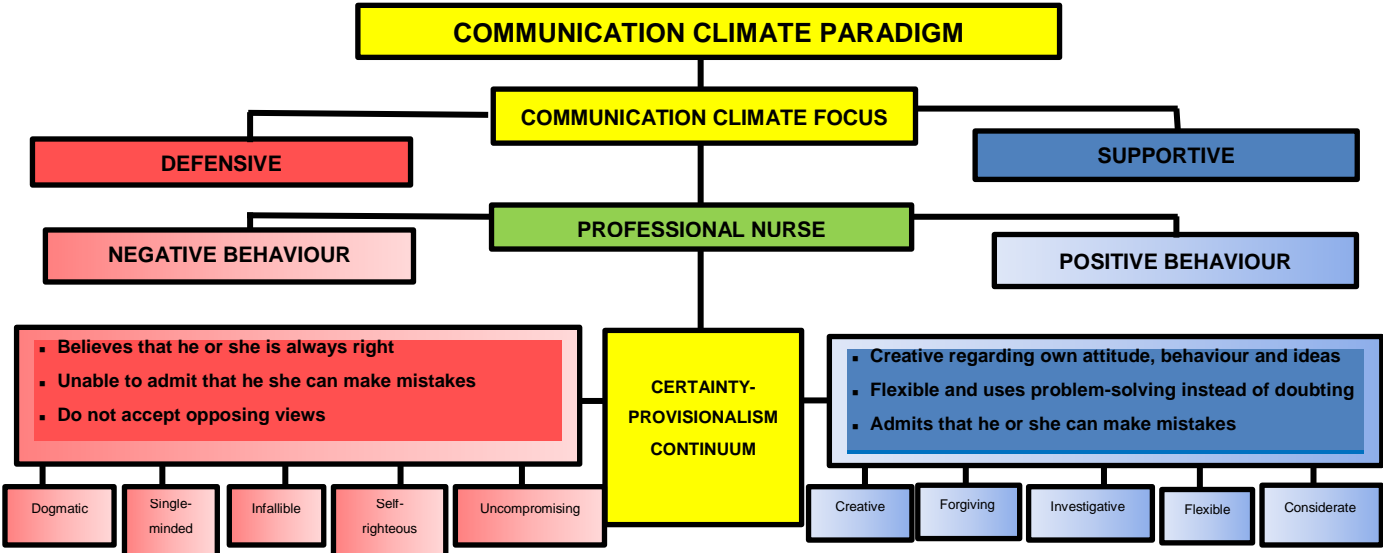
*Provisionalism* refers to a forgiving view, in which errors and mistakes are recognised as inevitable and the focus is on minimising them (Buchanan & Huczynski 2010:228). According to Hajdasz (2012:38-39), it is employed by those who, despite having strong opinions of their own, still have the ability to acknowledge the different points of view of others. They select word choices such as *perhaps*, *maybe* and *possibly*. “Provisionalism reduces defensiveness by: making allowance for provisional attitudes, a willingness to investigate issues, and openness to new possibilities” (Czech & Forward 2013:12). A speaker can reduce defensiveness in a listener by communicating willingness to experiment (trying out new things) (Soanes 2009:501) with his or her own behaviour, attitudes and ideas (Gibb 1988:5). “The person who appears to be taking provisional attitudes, to be investigating issues rather than taking sides on them, to be problem-solving rather than doubting, and willing to experiment and explore tends to communicate that the listener may have some control over the shared quest or the investigation of the ideas” (Gibb 1988:5). Statements in provisional conversations might include: “I have an idea I think **might** work” (Adams & Galanes 2012:114).

From an organisational point of view, Costigan and Schmeidler (1984:112-114) state that provisional managers use communication that allows creativity (experimenting with one’s own attitude, behaviour and ideas); flexibility (using problem-solving rather than doubting) and investigating, rather than taking sides (see Box 3.12). *Investigating* means to conduct a systematic or formal inquiry into something, so as to establish the truth (Soanes et al 2009:748), and to search through or into [something] (*Merriam Webster* 2013). *Inquiring* refers to the asking of information or indicating that information is sought, but inquiry is reserved for uses such as “meaning to make a formal investigation” (Soanes et al 2009:734; 474). Inquiry in a communication context can be useful to develop mutual engagement; engagement in mutual inquiry assists communicators to re-evaluate each other’s desires and redefine the actual problem. Jeong (2010:165) states: “It is important not only to sort out what each party truly wants after getting the facts and clarifying the meaning but also to perceive the intentions and feelings behind the words. A deep probing of the problem and shared understanding helps keep communications on track”.

The term *considerate* refers to the action of being careful not to inconvenience or harm others, or showing careful thought (Oxford English Dictionary 2017). Consideration implies being thoughtful of the rights and feelings of others (Merriam Webster 2013). Benson, Zigarmi and Nimon (2012:33) view *consideration* in a work situation as the extent to which a leader engages in two-way communication indicative of friendship, mutual trust, and respect, and demonstrates warmth in a relationship between leader and follower. Elaborating on this view, Zigarmi, Blanchard, O'Connor and Edeburn (2005, cited by Benson et al 2012:34) define *considering behaviour* (which they label *supportive behaviour*) as the extent to which a leader engages in two-way communication, listens, provides support/encouragement, facilitates interaction, and involves the employee in decision making.

**BOX 3.12: SUMMARY OF THE EMPIRICAL CONSTRUCTS AND CONCEPTS FOR PROVISIONALISM**

The positive behaviour constructs identified from literature on provisionalism (Costigan & Schmeidler 1984; Gibb 1961; Adler et al 2009; Forward et al 2011; Czech & Forward 2013) include: *being creative – experimenting with own attitude, behaviour and ideas; being flexible – using problem-solving rather than doubting and investigating issues rather than taking sides*. The main (communication behaviour) concepts extracted from these constructs are: *creative; forgiving; investigative; flexible and considerate* (see Figure 3.6).



**FIGURE 3.6: SCHEMATIC PRESENTATION OF THE CERTAINTY-PROVISIONALISM CONTINUUM OF THE GIBB'S DEFENSIVE COMMUNICATION CLIMATE PARADIGM**

**Source:** Adapted from Gibb, JR. 1961. Defensive Communication. *Journal of Communication* (11):141-148; Costigan, JI & Schmeidler, MA. 1984. *Exploring supportive and defensive communication climates*.

### 3.5 JUSTIFICATION FOR USING THE CHOSEN THEORETICAL FRAMEWORK

The findings made by Gibb have been regarded by a legion of researchers such as Al-Kahtani and Allam (2013), Burlison (2009), Czech and Forward (2013), Forward et al (2011), Glomo-Narzoles (2012), Hajdasz (2012), and Madlock and Booth-Butterfield (2012), as a significant contribution to the understanding of supportive and defensive communication climates. These conducted studies will be scrutinised in more detail:

In organisational contexts, the Burlison (2009) study described supportiveness through outcomes of supportive interactions; however, in two different investigations he focused more on the factors that impact on individuals' evaluation of supportive messages. These investigations revealed that significantly high levels of emotional upset minimised the ability to process supportive messages. Forward et al (2011) investigated the functionality of Gibb's (1961) theory, by incorporating the Communication Climate Index of Costigan and Schmeidler (1984) in their own inspection tool. The results of this study suggested a need for interpretation and reconceptualisation of the communication climate constructs.

In educational contexts, Hajdasz's (2012) study explored the communication climate of a group of students at a university in Ottawa, according to the Gibb's model, focusing specifically on factors that affect the feelings of the communication climate. His study revealed that defensive communication supersedes the positive impact of supportive communication on the establishment of a communication climate. A study by Al-Kahtani and Allam (2013) investigated the communication climate of a university in the Kingdom of Saudi Arabia; neutrality and empathy were found to be the most prominent facets, and evaluation the least defensive in the communication climate investigated. The climate was also found to be predominantly supportive. A study conducted by Glomo-Narzoles (2012) in another school setting revealed that the construct *neutrality* emerged as one of the most dominant aspects of the communication climate and that the communication climate was related significantly to the institution's productivity.

The Madlock and Booth-Butterfield (2012) study revealed a significant relationship between job satisfaction, interpersonal relations, performance, supervisor ratings, turnover, support, and the communication climate in an organisational situation. Another organisation-based study by Czech and Forward (2013) identified a transposed association between subordinate and equality feelings of superior effectiveness. It was also noted in this study that satisfaction in relationships was predicted by description and empathy.

Although the Gibb's model is conceptually appealing, enduring and ubiquitous, it has received little elaboration or empirical support (Forward et al 2011:4; Czech & Forward 2013:11). This is due to Gibb's never having created a survey instrument of his own to measure the validity of his theory, and to the fact that when a survey instrument did become available (Costigan & Schmeidler 1984 Communication Climate Index), "the concept of supportive and defensive communication had taken a functionalist and skills-orientated turn", which was more applicable to practitioners than to theoreticians (Czech & Forward 2013:11). This dilemma prompted Forward et al (2011) to conduct a study to measure the empirical dimensionality of Gibb's theory. The evidence collected in their study suggested potential problems with the underlying dimensionality of the Costigan and Schmeidler (1984) Communication Climate Index, created to reflect the types of behaviour originally hypothesised by Gibb.

The researcher took note of the fact that the Communication Climate Index mainly measures the perceptions of individuals with regard to the communication behaviour of their interlocutors, which could point to possible bias. Thus the researcher feels that to measure the communication climate focus of a specific group of individuals accurately, the communication behaviour preference of this group of individuals must be assessed first. Then, subsequently, the perception that this group has of the communication behaviour of their interlocutors must be assessed.

Despite the dimensionality challenges of the Communication Climate Index, Czech and Forward (2010:435) believed that Gibb's categories provided the most significant direction in terms of how to create or avoid a specific communication style, and the effect of behaviour on desired relational and organisational outcomes. They came to the conclusion that "researchers could begin their work with the proposed conceptual framework [Gibb's model] and refine a measuring tool that captures these global dynamics [such as task and authority dynamics] while simultaneously identifying specific behaviours that contribute to these interpersonal relational impressions" (Forward et al 2011:13). Therefore, researchers have still continued utilising the Gibb's model after 2010 as a foundation for their studies (Czech & Forward 2013; Hajdasz 2012), incorporating the Communication Climate Index into their studies as a measuring instrument.



Although this present study also utilised the Gibb's model as its foundation, it did not utilise the Communication Climate Index (as developed by Costigan & Schmeidler 1984) *per se* but only referred to specific elements of this Communication Climate Index, as the objectives of the present study were to identify and define the empirical concepts of the model, create a new measuring instrument from the model and draw up guidelines to address the communication climate in South African public hospitals.

### **3.6 CONCLUSION**

This chapter described the Gibb's Defensive Communication Climate Paradigm (1961) according to positive/supportive and negative/defensive communication climates. The aspects that were discussed included: the conceptual framework, theories or models related to communication climate, Gibb's Defensive Communication Climate Paradigm (1961) and the conceptual framework applied to nursing practice relationships. Gibb's theory (1961) describes the communication climate by highlighting defensive or supportive communication behaviour. The nature of the communication climate is determined by the (positive or negative) behaviour of participants during communication encounters.

In the following chapter, the quantitative research design underlying this study is discussed according to the conceptual framework and research questions (the latter deduced from the conceptual framework and literature review). The research methodology for the development and testing of the research instrument is discussed according to the developmental and testing phases.

## **CHAPTER 4**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **4.1 INTRODUCTION**

In Chapter 3, the Gibb's Defensive Communication Climate Paradigm (1961) was discussed according to the conceptual framework, theories or models related to the communication climate, and how it applies to nursing practice relationships.

In this chapter, the study is discussed according to the conceptual framework and the research questions (the latter, deduced from the conceptual framework), the research design and the objectives underlying the study. Furthermore, the research methodology for the development and testing of the research instrument is discussed according to the developmental and testing phases.

#### **4.2 THE CONCEPTUAL FRAMEWORK AND RESEARCH QUESTIONS**

The conceptual framework (see Chapter 3, and Figure 1.1 in Chapter 1), pertaining to the Gibb's Defensive Communication Climate Paradigm and the three formulated research questions, serves as the foundation for this study and is explained in detail in chapters 1 and 2. The reader is therefore referred to these chapters for future reference.

#### **4.3 RESEARCH DESIGN**

This study consisted of two phases, namely a developmental and a testing phase. This two-phased design facilitates the development, validation, and evaluation of research instruments and techniques (De Vos et al 2011:213; Polit & Beck 2010:296-297). A qualitative approach was used during the developmental phase of the study to develop the items for the instrument. A non-experimental research design was then used within the quantitative approach to test the measuring instrument (questionnaire). These two phases are discussed in more detail in sections 4.4 and 4.5 of this chapter.

Du Plooy (2009:41) states that a quantitative (positivist) paradigm is legitimised by objectifying the natural world, in order to control (test or measure) it. This approach, according to which knowledge is based on rationality, has been criticised for denying other methods of acquiring knowledge; however, the qualitative approach to research should not be viewed as an alternative to the quantitative (positivistic) paradigm, but should instead be treated as a complementary approach when researching communication in organisations (Du Plooy 2009:40).

#### **4.4 RESEARCH OBJECTIVES**

Objectives were set for this study for both the developmental and testing phases. The objectives are based on literature reviewed during the present study and the application of the Delphi technique.

##### **4.4.1 Objectives during the development phase**

The first objective set for the developmental phase was to define the construct or behaviour to be measured, by means of a literature study. The second and third objectives were to formulate and refine concepts for the conceptual continuums within the Gibb's model. The fourth and fifth objectives were to develop a response format and instructions for respondents and to validate the refined concepts, response format and the instructions for respondents by means of expert input and sample congruent (pre-test) input. The final objective for the developmental phase was to incorporate the validated concepts, response format and instructions for respondents into an instrument.

##### **4.4.2 Objectives during the testing phase**

The first objective set for the testing phase was to pre-test the newly developed measuring instrument, using a sample congruent (pre-test) group. The second objective was to statistically test the validity, reliability, sensitivity, objectivity and ethical acceptability of the measuring instrument, by implementing the newly developed measuring instrument at three selected public hospitals in the Gauteng province. The third and final objective was to draw up guidelines for the development of a supportive communication climate for public hospitals.

## **4.5 RESEARCH METHODOLOGY FOR THE DEVELOPMENT AND TESTING OF THE MEASURING INSTRUMENT**

The research methodology followed for the development and testing of the measuring instrument is discussed according to both the developmental and testing phases.

### **4.5.1 Phase One: Developmental phase**

The developmental phase included aspects such as the refinement and design of the data collection instrument (referring to the self-designed Semantic Differential Scale questionnaire and the quantitative design intended to answer the stated research questions and describe the communication climate in three selected public hospitals), the validation of data and data-analysis during the developmental phase, pre-testing of the instrument and a discussion of the pre-tested instrument prior to the empirical study.

#### **4.5.1.1 *Data refinement and design of the data collection instrument***

The data refinement and design of the data collection instrument employed a literature review, Delphi technique and a Semantic Differential scale, and the use of these entities within this study will be explained in more detail.

##### **4.5.1.1.1 *The literature review***

A literature review is a brief description of current knowledge on a study problem. It provides the reader with a better understanding of how the present study fits in with previous findings. The purpose of a literature review is to create an idea of what is known and what is still undiscovered about a particular study problem or phenomenon (Du Plooy 2009:61; Jooste 2010:291; Watson et al 2008:75).

Using a reliable literature search, the researcher had to explore an extensive range of literature to develop an idea of concepts related to the communication climate of professional nurses. The search strategy included four electronic databases for the Social Sciences: three EBSCOHost databases (CINAHL, Medline and PubMed) and one CSA database (PsychInfo). A basic understanding of the literature is necessary to orientate the researcher to finding and managing relevant literature. The gathering process involved the following steps:

- The researcher first commenced the process with a precise definition of all concepts, which allowed for a list of its basic elements (Chinn & Kramer 2008:195; Walker & Avant 2005:69).
- Secondly, the researcher located studies from primary channels and secondary channels. The *primary channels* involved publications which form a link between the population under investigation and communication climate. Gaining access to primary works was achieved through two methods: through the use of libraries and also through the ancestry approach (which involved retrieving information by tracking the research cited in already-obtained relevant research). A limitation of this channel is the tendency of journal reviewers to look less favourably on studies that conflict with conventional wisdom than those supporting it. The researcher aimed at conducting a systematic, comprehensive literature search, therefore *secondary channels* formed the mainstay of the literature review as they contain the information most closely approximating to all publicly available research.

Using bibliographies (non-evaluative listings of books and articles that are relevant to particular topics) compiled by others is time saving for the reviewer. Some of these lists, however, extended past the reviewers' field of interest and demanded constant updating. The indexing and abstracting services associated with the Nursing Sciences and Communication *per se* were the sources of information that proved to be the most valuable. The limitation of this service lies in the amount of time (often three to four years) that passes between the time when a study is completed and when it appears in the system, due to restrictions on submissions to the system. More than one secondary source is required for a literature search to be regarded as exhaustive. The system is entered through keywords associated with specific research topics, such as *communication*, *behaviour* and *nursing*. To this end, the Thesaurus was valuable in ensuring that the researcher could access an extensive amount of literature on the topic.

Searches conducted through the use of computers can access thousands of documents originating from a wide variety of sources. The exhaustiveness of this method, linked to the vast expansion in Nursing Science and Communication research, resulted in the problem of information overload; however, the effort was still far less than that required for many hours of manual searching.

- Thirdly, the researcher determined the accuracy of the literature search, bearing in mind that the question of which and how many sources to use has no fixed answer. The researcher employed multiple channels, to minimise the chances of strong unidentified bias that could occur when deciding which sources to include or exclude. The researcher also utilised informal sources, being aware that they too carry the risk of bias, as their benefits are rooted in the fact that they contain the most recent findings.
- Fourthly, the researcher protected validity during the study retrieval process by asking how the studies might differ from all other studies and how elements contained in the studies might differ from all elements of interest. A threat to the validity in the literature study occurred during the retrieval process, in that individuals or elements in the study did not represent all individuals or elements in the target population. The researcher thus had an obligation to describe the missing populations carefully and to qualify any conclusions based on over-represented samples. Because the topic of communication is so wide, the researcher had to make choices regarding the inclusion and omission of sources. For this reason, he developed a list of requirements to be met in each choice for inclusion of a literature source. In an effort to filter the sources of information, the researcher identified practical requirements. He included only literature on the target group, which is professional nurses and public hospitals, and looked in general at communication, communication climate, professional nurses, public hospitals, and supportive communication.

Furthermore, he searched for literature that already linked professional nurses and communication, and focused more on literature sources that had themes in common with related literature (problems relating to each other or similar causes). He also avoided exploratory studies that worked towards a theory (inductively), but deductively searched for explanatory or intervention studies, because the Gibb's Model (1961) had already been adopted as the theoretical framework for the study.

The researcher then searched for articles that evaluated previous studies and provided collective findings (reviews) and quoted only relationships between variables that had already been proven, or when it was pertinently stated that although the relationship was unproven, there was a good relationship of facts.

He looked at the content of studies with regard to the accuracy of the interpretation, how old the references were, how objective the researcher/s appeared to be and how the studies compared with possible opposing views.

Finally, the researcher engaged in a broad search to ensure that all possible areas resorting under the phenomenon were covered, and addressed the problem of access to literature by utilising different sources, including academic journals and textbooks in the libraries of various universities, website searches and magazines on nursing and communication issues.

Addressing the threat to validity, as mentioned previously, and referring specifically to the multi-racial South African context, the researcher retained a focus on whether studies conducted in other countries were applicable to the South African situation. This second threat to validity was also one of the major reasons why the researcher did not merely use an existing communication assessment instrument to collect the data from the respondents in the study; he had to develop a new instrument that would also address the multi-cultural make-up and context in South Africa. He made a point of searching for South African-based research studies; the main frame of reference he used to identify trends and issues in South African health services was that of government policy papers, such as the White Paper on Transformation in Health Services (South Africa 1996b) and the Gauteng Turnaround Strategy (GDoH 2012).

An analysis of literature on communication climate and communication climate theories uncovered the Gibb's Defensive Communication Climate Paradigm (1961) and extensive studies based on this theoretical framework. During the developmental phase of the study the researcher used the literature review to identify concepts (Brink et al 2012:56-57; Chinn & Kramer 2008:196; Polit & Beck 2010:16-17) and substantiate and expand on concepts and constructs (Chinn & Kramer 2008:95; Walker & Avant 2005:73), obtained in the Gibb's Paradigm (1961). Only one measuring instrument: the *Communication Climate Index*, developed by Costigan and Schmeidler in 1984, could be found. The Communication Climate Index was created as a research instrument to operationalise the initial twelve factors (six pairs) assessing supportive and defensive communication behaviours of the Gibb's theory (1961), by presenting 36 questions in a Likert-type scale format.

The researcher initially considered using the Communication Climate Index as the measuring instrument for the current study; however, previous studies utilising this index (Czech & Forward 2010; Forward et al 2011:12) had encountered potential underlying problems with dimensionality. As a way forward, these studies suggested reconceptualising the model and subsequent instrument development. The researcher thus refrained from using the Communication Climate Index, reconceptualised the twelve communication climate factors and developed a new measuring instrument for the current study.

The literature review for the present study involved national and international literature that included books, articles and research studies (Brink et al 2012:74; Burns & Grove 2009:93-94; Polit & Beck 2010:171). The information in the literature studies was discussed with a panel of experts (Delphi technique) before the designing of a data collection instrument, a Semantic Differential Scale (SDS). The developmental phase involved the refinement and adaptation of all the concepts contained in the conceptual framework (Chinn & Kramer 2008:196).

#### *4.5.1.1.2 The Delphi technique*

The Delphi technique is a method of collecting group opinion on a particular topic (Keeney, Hasson & McKenna 2011). It is based on the premise that 'pooled intelligence' enhances individual judgment and captures the collective opinion of experts (Pascoe, Rogers & Norman 2013:2-9). It provides an opportunity for experts (panellists) to communicate their opinions and knowledge anonymously about a complex problem or a topic of interest, to see how their evaluation of the topic aligns with others, and to change their opinion, if desired, after reconsideration of the findings of the group's work (Pascoe et al 2013:2-9).

The main characteristics of a Delphi technique are: expert panel, iteration, controlled feedback, statistical summaries of group response and anonymity (Vernon 2009:70). Both qualitative and quantitative data can be generated through a Delphi technique (Bourgeois, Pugmire, Stevenson, Swanson & Swanson 2006:1). It is a flexible approach and can be modified to achieve the purpose of the research. The Delphi survey offers several advantages, which makes it an important research methodology for health and nursing research, but also has some disadvantages.



With regard to the use of the Delphi technique in nursing, Vernon (2009:69) states that the Delphi technique was embraced by nursing for the first time in the 1970s. Since then it has been widely applied in the health care field, used for exploring various research problems and applied in exploring future occurrences in nursing education, clinical nursing research priorities and quality of care (Boulkedid, Abdoul, Loustau, Sibony & Alberti 2011; Cowman, Gethin, Clarke, Moore, Craig, Jordan-O'Brien & Strapp 2012; Fletcher-Johnston, Marshall & Straatman 2011; Gill, Leslie, Grech & Latour 2013a; Gill, Leslie, Grech & Latour 2013b; Ramelet & Gill 2012; Uphoff, Wennekes, Punt, Grol, Wollersheim, Hermens & Ottevanger 2012; Wilson, Hauck, Bremner & Finn 2012).

The advantages of the Delphi technique are embedded in the fact that it utilises experts in the field and brings together the collective wisdom of expert panellists in a cost-effective manner (Bothma, Greeff, Mulaudzi & Wright 2010:258). It facilitates group communication and sharing of information among participants anonymously, which paradoxically also allows independent thinking (Polit & Beck 2012:267). It allows the expert panellists to focus on key issues within the questionnaire, which in turn prevents them getting side-tracked. Content validity is assured by means of iterative rounds (Polit & Beck 2012:267).

The disadvantages of the Delphi technique include the time-consuming iterative rounds; panellists tending to lose interest in the study (Keeney et al 2011) or changing their minds during the course of the study; no clear guidelines suggesting definitions for issues such as consensus, experts, panel size and sampling techniques (Hung, Altschuld & Lee 2008:192); and higher attrition rates due to an increased number of phases (Bailey 2009:28).

To overcome these mentioned disadvantages, the researcher

- explored the literature, which provided guidelines from the experiences of other researchers
- used only three iterative rounds for the purposes of the present study, to avoid panel members' losing interest and to keep the attrition rate to a minimum
- recruited panellists who were likely to have a genuine interest in the topic and believe that the study in itself might provide an impetus for them to learn more about the topic, and hence gain more knowledge

- considered a 90% and above agreement rate as consensus in the developmental phase (which represents a high cut-off point to identify the most critical issues and to eliminate less critical issues), and then lowered it to 70% and above in the pre-test phase to ensure that among the critical issues identified, important issues were not eliminated (Polit & Beck 2008:238).

Furthermore, to address the issue of experts and sampling technique, the researcher selected a purposive sample of panel members who, by virtue of their academic positions, possessed knowledge about three areas of interest, namely nursing sciences, behavioural sciences and communication sciences. The number of panel members included was well above the minimum recommended by the literature, to address the issue of panel size and to increase the validity of the study.

Regarding the quality and selection of the expert panel, the inclusion of a panel of experts was based on the rationale of Donohoe and Needham (2008:3), who are of the opinion that a group is better than one expert when exact knowledge on a topic is not available. Expertise lies along a continuum which includes experts with subjective expertise, for example in nursing sciences; mandated expertise, for example in behavioural sciences; and objective expertise, for example in communication sciences. The principles of this continuum were applied to this study, as stated in the sample criteria. Donohoe and Needham (2008:14) suggest that experts be identified with consideration to their proximity to the issue under investigation.

In the present study, the expert panellists selected represented those most likely to be knowledgeable regarding a nursing sciences topic such as communication. Academics with subjective expertise, mandated expertise and objective expertise were included in the study, as per the criteria proposed above:

- Subjective expertise – Academics in South African universities who possess knowledge in terms of nursing sciences.
- Mandated expertise – Academics in South African universities who possess knowledge and experience in terms of behavioural sciences.
- Objective expertise – Academics in South African universities who possess knowledge in terms of communication sciences.

For a study utilising the Delphi technique it is also necessary to establish the size of the expert panel, that is the number of expert panellists to be included in the study (Polit & Beck 2008:50). Because the sample is purposively selected there are no clear guidelines for the number to be included in studies applying the Delphi survey and it depends entirely on the problem being investigated. Sample size can be dependent on whether the panel is homogeneous or heterogeneous (Clarke 2008:e102). The numbers suggested by Keeney et al (2011) are: if the experts are from the same discipline 15 to 30, or if from differing disciplines 5 to 10 per professional group. Delphi survey studies do not call for the sample to be representative in terms of statistics (Ju & Pawlowski 2011); therefore sample size differs from that in other surveys.

The sampling framework for this current study was constructed following the principles discussed in the sections above. The study provided an opportunity for 12 expert panellists from three South African universities to be part of the research study. Three categories were covered: academics with expertise in nursing sciences, academics with expertise in behavioural sciences and academics with expertise in communication sciences (see Table 4.1). The panel would have only three discussions and therefore it was expected that attrition would be at a minimum. Donohoe and Needham (2008:13) reiterate that the qualifications of the experts, balance of expertise and panel size must be critically assessed. These principles were applied to the study by carefully appraising the sample characteristics and the panel size.

**TABLE 4.1: SAMPLING FRAMEWORK OF PANEL OF DELPHI EXPERTS**

| CATEGORIES                        | Organisations                         |              |              |           |
|-----------------------------------|---------------------------------------|--------------|--------------|-----------|
|                                   | University 1                          | University 2 | University 3 |           |
| Experts in Nursing Sciences       | Expert x 2                            | Expert x 1   | Expert x 1   | 4         |
| Experts in Behavioural Sciences   | Expert x 2                            | Expert x 1   | Expert x 1   | 4         |
| Experts in Communication Sciences | Expert x 2                            | Expert x 1   | Expert x 1   | 4         |
| <b>Subtotals</b>                  | 6                                     | 3            | 3            | <b>12</b> |
| <b>Total</b>                      | Total Expert Panellists (sample) = 12 |              |              |           |

This study applied the Delphi technique because its aim was to develop a measuring instrument that could be used to assess the communication climate of professional nurses. To achieve the aim of the study, it was important to explore areas that could be counterproductive to a supportive communication climate in public hospitals. Skulmoski, Hartman and Krahn (2007:1) suggest that a Delphi technique is well suited for application when knowledge about a phenomenon is incomplete.

A literature search revealed a limited amount of published literature investigating the interpersonal communication among professional nurses, or the areas that could be counterproductive to supportive communication as experienced by professional nurses working in South African public hospitals. This led to the assumption that there was a need to explore this topic. Skulmoski et al (2007:1) further state that the Delphi technique can be well used when the goal is to enhance understanding of problems, opportunities and solutions, as was the case in this study. The researcher selected this method, being cognisant of its disadvantages; with the aim of ensuring that these were considered and minimised as far as possible (Amos & Pearse 2008:95).

The researcher followed a data gathering process and the study was conducted in two phases. The first phase, the developmental phase, consisted of a literature study and discussions with a panel of experts (in round 1 using the Delphi technique), to which all of the expert panellists were invited and all 12 of whom (100%) responded). The resulting feedback led to the development of the draft measuring instrument (Semantic Differential Scale [SDS]) questionnaire (see Annexure E).

This draft measuring instrument also served as instrument for the pre-test study. Pre-testing is optional, but it will assist in identifying ambiguities and improve the feasibility of the administration of the process (Keeney et al 2011:63). Thirty professional nurses were used as respondents to pre-test the first draft of the instrument. From the sample's answering of items, the researcher could determine through frequency tables (using the SAS JPM12.0 system) what the reliability of the draft instrument was. This sample also completed a post-pre-test questionnaire (see Annexure F) to obtain feedback on how they perceived the new instrument. The results of this pre-test were discussed with the panel of experts (round 2 of the Delphi process, to which all of the expert panellists were invited and all 12 of whom (100%) responded again) and all suggestions noted and considered (see Annexure G). The information gained from the expert opinions, the questionnaire and reliability computations led to the refinement of the measuring instrument, a process discussed in Chapter 5 of the study.

In the second phase, the draft measuring instrument (the Semantic Differential Scale questionnaire – see Annexure E) was corrected from the information obtained from the results of the pre-testing of the draft SDS questionnaire, and thereafter returned to the panellists for input.

After corrections and refinement, the SDS questionnaire was tested by utilising it to assess the communication climate of the professional nurses. From the testing of the instrument the researcher drew a number of conclusions that will be discussed in Chapter 7. From these conclusions the researcher developed guidelines for the development of a supportive communication climate in public hospitals. He did so by discussing the results and proposed guidelines with the panel of experts (round 3 of the Delphi process to which all of the expert panellists were invited and all 12 (100%) responded again). The fact that all the panellists responded in all three rounds is unusual and indicates the high level of interest and commitment of the expert panellists in the study.

Considering the iterative nature of the Delphi survey and the sample characteristics, the response rate for this study was considered acceptable. Hsu and Sandford (2007) and Keeney et al (2011) state that studies utilising a questionnaire as a data collection tool are known for low response rates. Gordon (2009:8) indicates that a response rate of 40% to 75% from panellists can be expected. In this study, consensus was built over two rounds. The first round generated unstructured data that is presented in data displays. The second round gave the panellists an opportunity to re-evaluate their ideas (consensus building) in line with group summaries and descriptive statistics.

Figure 4.1 illustrates the Delphi technique utilised in this study.

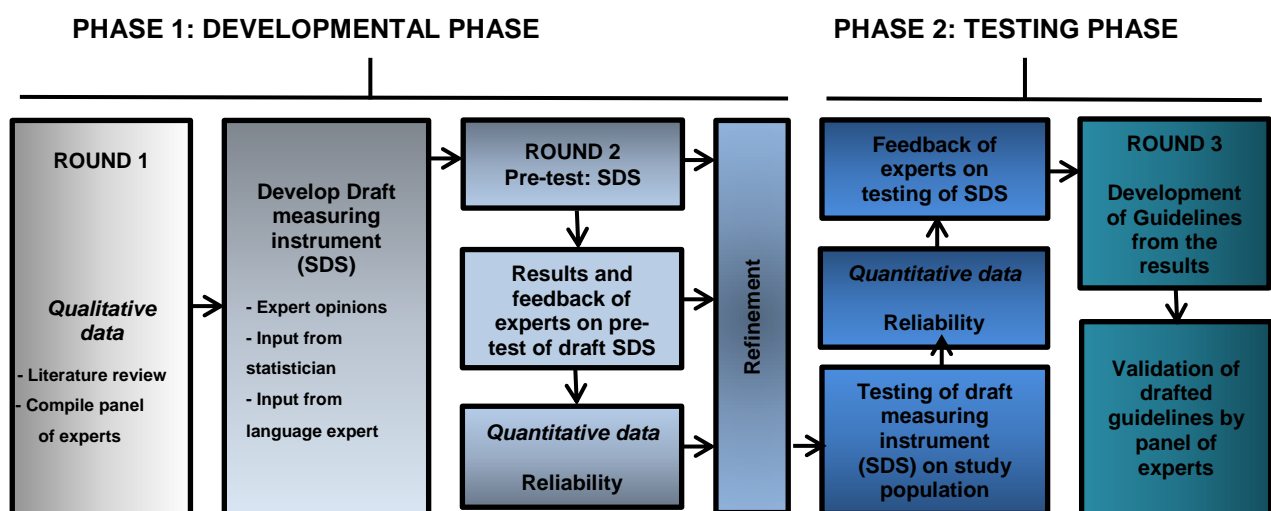


FIGURE 4.1: THE DELPHI TECHNIQUE UTILISED IN THE STUDY

Keeney et al (2011) suggest that the Delphi surveys enhance reliability in two ways: in the decision making process, as the members of the expert panel do not meet face to face, which eliminates group bias or group thinking, and the fact that an increase in panel size increases the reliability. This assertion also applies to this study as the panellists did not meet face to face and group size remained stable in the second and third rounds (refer to panel size, as discussed above). However, the study would have to be repeated in future to confirm whether or not the questionnaires produced the same results with another panel.

#### *4.5.1.1.3 The Semantic Differential Scale*

For the purposes of this study, the researcher developed and used a semantic differential scale (SDS) to assess the communication climate of professional nurses in public hospitals. The SDS is a scale that is simple to construct, administer and to score. The scale consists of seven spaces (blocks) placed on a horizontal line dividing two extreme descriptive ends of a dimension being studied (Burns & Grove 2009:413; Polit & Beck 2012:302-303). A computer is used to generate all the blocks (Burns & Grove 2009:413; Polit & Beck 2012:302-303). The constructed questionnaire for this study consisted of 70 items using the Semantic Differential Scale. The researcher pre-tested the developed SDS to refine the scale for the testing phase of the study.

When a SDS is used, the researcher requests the respondents to indicate the level to which the construct, emotions, behaviour, or whatever else is represented by the SDS, is experienced, by drawing an "X" across one of the numbered blocks on the scale. The marked block represents the score or measure of the construct. According to Burns and Grove (2009: 412), values ranging from 1 to 7 are assigned to the spaces on a semantic differential scale. The 1 on the scale will represent the most negative response and the 7 the most positive response. In designing the questions, negative responses should be placed randomly on the left or right of the scale, to avoid global responses (Burns & Grove 2009:412). The SDS, like other measuring scales, has direction and therefore, the researcher needs to take care in which direction the measurements are made.

The criteria obtained during the current study were used to fully develop the items for the questionnaire. These items were substantiated and expanded on by means of the literature review. Thereafter, the items were refined through discussion sessions with the panel of experts. Examples of the items (indicating the communication behaviour orientation of professional nurses) from each conceptual continuum are shown in Table 5.1. A detailed description of the criteria for all the items developed for the instrument, representing both the communication behaviour orientation of the professional nurses and the perceptions they have of their operational manager's communication behaviour orientation, is shown in Annexure J.

Additionally, a scale and instructions for pre-test respondents were developed. The development of the SDS scale for the purposes of this study is described in more detail in Chapter 5.

#### **4.5.1.2 Validation of data during the developmental phase**

The following actions were implemented in an attempt to ensure the validation of data: focusing on the concepts contained in the conceptual framework, implementing different scales, refining instructions for the respondents and reviewing relevant research articles and studies.

#### **4.5.1.3 Data analysis**

Data were analysed during the developmental phase, in accordance with Burns and Grove (2009:545; 528-529) and Polit and Beck (2010:76) by means of descriptive techniques including bracketing, intuiting, reflection and content analysis and included

- The selection of the unit of content to be analysed
- The development of a category system to classify the units of content.

##### **4.5.1.3.1 Content analysis**

In accordance with Burns and Grove (2009:528-529) and Polit & Beck (2012:723), the *process of content analysis* involved the following:

- *Selection of the unit of content to be analysed*

Words and themes were applied during this study as units of analysis. A theme is defined as a phrase, sentence or paragraph encapsulating ideas or making an assertion of some topic (Burns & Grove 2009:528; Polit & Beck 2012:744).

- *Development of a category system of classifying the units of content*

Using a literature review, categories derived from the conceptual framework were developed. The categories comprised six conceptual continuums: Evaluation-Description, Control-Problem Orientation, Strategy-Spontaneity, Neutrality-Empathy, Superiority-Equality, and Certainty-Provisionalism continuums (see sections 3.2 & 3.4). Each category was also divided into a sub-category, for example the Evaluation-Description Continuum into defensive and supportive experiences (see Figure 1.1). A coding system was developed for each category and sub-category. Each category and sub-category and the coding system were based on the conceptual framework underlying this study.

#### **4.5.1.4 Pre-testing of the Semantic Differential Scale instrument**

In order for the researcher to detect any problems that might be encountered during the research study, the instrument was pre-tested for clarity of instructions, relevance, usability and completion time to refine the instrument and to introduce modifications where required. The instrument was also pre-tested to ascertain its validity and reliability (Polit & Beck 2010:345; Watson et al 2008:305).

It is suggested by Polit and Beck (2012:640-641) that experts can be useful if the evidence base of a study is thin and the resources for undertaking exploratory research are limited. Prior to, during and after the pre-test study, the researcher presented the instrument to a panel of experts for their comments and recommendations. The developmental phase and pre-testing of the measuring instrument are discussed in detail in Chapter 5.



**4.5.2 Phase Two: Testing phase**

The discussion on the testing phase (see sections 4.5.2.1 & 4.5.2.2), includes aspects such as a description of the sample design, the instrument with regard to its reliability and validity and the procedure for the administration of the instrument (questionnaire). Furthermore, aspects such as the post-test data analysis, the approach to guideline development and the ethical considerations applicable to the study are also discussed in section 4.7 to 4.8.

**4.5.2.1 Sample design**

The sample should be representative of the total population in order to allow generalisation of the findings of the research to the population (Babbie 2011:220). A simple, random sampling design was utilised during the developmental and testing phases (see Figure 4.2). This is a sampling method where the population is selected from the available sampling frame (Babbie 2011:231; Burns & Grove 2009:349). This sampling design was chosen in order to maximise validity, reliability, homogeneity, randomisation, and representativeness and to make possible a meaningful interpretation of the results (Brink et al 2012:134; Polit & Beck 2012:738). As mentioned in Chapter 1, this study uses a homogeneous approach because a uniform structure is required that is comparable (Martin et al 2013:12).

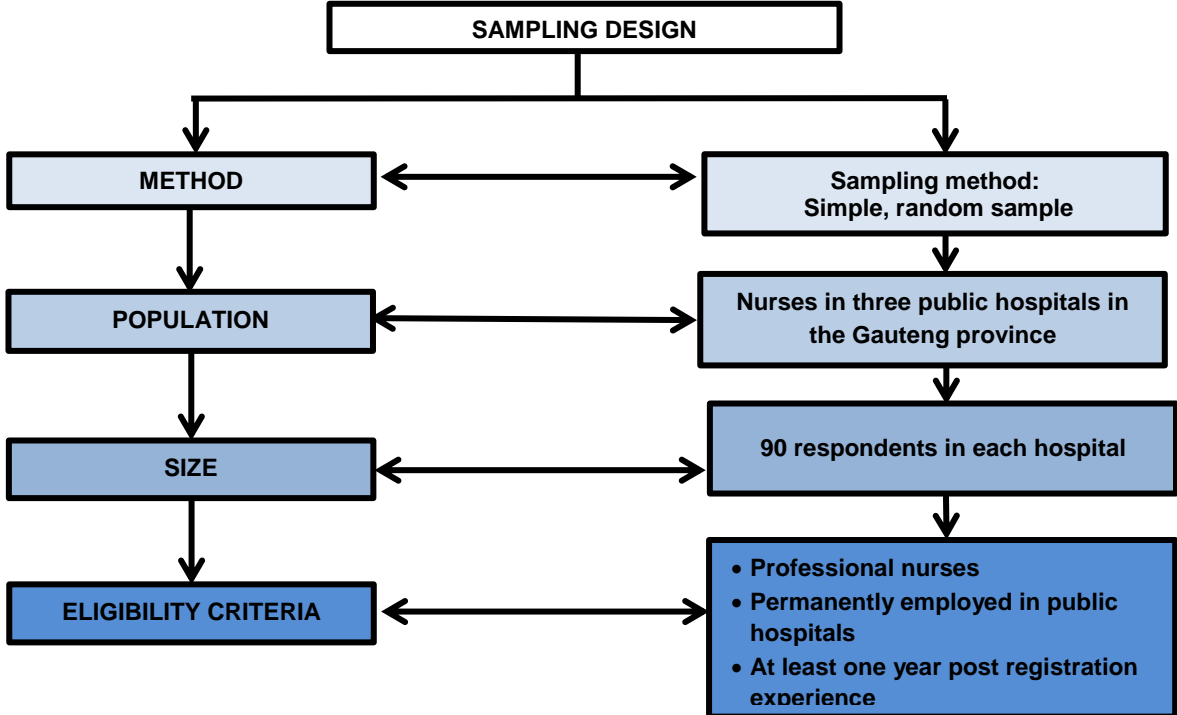


FIGURE 4.2: SAMPLING DESIGN: TESTING PHASE

The sampling method used to select the respondents was a simple, random sample (Burns & Grove 2009:349; De Vos et al 2011:226-228). All professional nurses, from three participating public hospitals, who met the sample eligibility criteria (outlined in section 4.5.2.1.1) constituted the sampling frame (Brink et al 2012:132; Polit & Beck 2012:742). A simple, random sample of 90 professional nurses from each participating public hospital was selected from the sampling frame (see Table 4.2).

#### *4.5.2.1.1 Sample eligibility criteria*

To be eligible to participate in both the pre-testing and testing of the measuring instrument respondents had to meet the following eligibility criteria:

- Being professional nurses at one of the three public hospitals participating in the study
- Being permanently employed, in a professional nurse post and placed at a public hospital
- Having had at least one year post-training service experience

#### *4.5.2.1.2 Population*

A research population is a large number of individuals or objects that are the main focus of the proposed research; they usually have some characteristics in common (Babbie 2011:214). The population consisted of all the professional nurses registered with the South African Nursing Council (SANC) who were functioning in all departments of public hospitals in the Gauteng province. The accessible population consisted of all professional nurses, who met the sample eligibility criteria (Brink et al 2012:131; Polit & Beck 2012:726), in three selected public hospitals situated in the West Rand District Municipal area, Johannesburg Metro and Ekurhuleni District Municipal area respectively.

#### *4.5.2.1.3 Sample size*

The sampling frame consisted of all professional nurses from three participating public hospitals who met the eligibility criteria. In total, the sampling frame equated to 360 respondents (100%).

The total number of respondents selected randomly from the sampling frame was 270. The sample size equated to 3 x hospitals x 90 respondents = 270. Thus, a sample of 270 (75%) was used (see Table 4.2).

**TABLE 4.2: SAMPLE DISTRIBUTION ACCORDING TO PROFESSIONAL NURSES AND HOSPITALS**

| PROFESSIONAL CATEGORY                 | Hospital A | Hospital B | Hospital C | Total | Percentage (%) |
|---------------------------------------|------------|------------|------------|-------|----------------|
| Professional Nurses in sampling frame | 125        | 120        | 115        | 360   | 100%           |
| Professional Nurses randomly selected | 90         | 90         | 90         | 270   | 75%            |

#### **4.5.2.2 The instrument (Questionnaire)**

The instrument took the form of a questionnaire. As stated previously, a quantitative approach and a non-experimental research design was used to formulate and test the measuring instrument (questionnaire), designed during this study. In this study, the research technique used was questioning by means of the structured questionnaire. The questionnaire contained two sets of closed-ended questions. The first set of questions were used to obtain the biographical details of the respondents and the second set of questions were formulated as paired items from the six conceptual continuums of the Gibbs' theory, which served as the foundation for this particular study. The development and pre-testing of the measuring instrument is discussed in detail in Chapter 5; therefore only aspects regarding the reliability, validity and administration of the measuring instrument will be discussed in this section.

##### *4.5.2.2.1 Reliability of the instrument*

*Reliability* is the consistency, constancy or dependability, accuracy and precision with which an instrument measures the attribute it is designed to measure (Burns & Grove 2009:377, 719; De Vos et al 2011:177; Polit & Beck 2012:741). According to Brink et al (2012:169-170), reliability means that the scores for a measurement are internally consistent and stable over time; thus the same results are obtained when administered on two or more separate occasions.

The reliability of the instrument was enhanced during both the developmental and testing phases by taking cognisance of the following aspects:

- Statements were formulated in as clear and uncomplicated a way as possible and refined during the pre-test study. Statements were simplified for easier understanding by respondents to complete the questionnaires.
- Different constructs of the conceptual continuums were substantiated and expanded on and then measured.
- Objective, consistent interpretation of the data was ensured by answering the data in a binary fashion; thus the Semantic Differential Scale enabled either a defensive communication behaviour response or a supportive communication behaviour response to be stated consistently.
- In order for each conceptual continuum to be measured, approximately five to six items per conceptual continuum were developed. This should be sufficient for reliability, as De Vos et al (2011:224) state that the number of items comprising an instrument is directly related to the reliability of the instrument.
- The instrument was tested during a pre-test study. The respondents took 20 minutes to complete the final instrument containing the Semantic Differential Scale Items.
- A statistician was consulted prior to, during and after data collection and analysis to ensure that the appropriate descriptive and inferential techniques were applied during the study. The statistician performed a Cronbach's Alpha reliability analysis on the constructs (six Gibb's conceptual continuums) and an item analysis to assess the reliability of the instrument during the pre-testing of the instrument (see section 5.4).
- By adhering to the process for the administration of the instrument, (see section 4.5.2.2.3), a safe, physical and psychological environment was created for the respondents.
- Minimising of errors of computer scoring of responses (such as missing data due to incomplete items) was achieved by the researcher's administering all the instruments personally to each respondent; explaining the research study in detail to the respondents; giving verbal and written instructions to all respondents regarding the completion of the instrument; instructing the respondents prior to completing the instrument to ensure that they had completed all the items; and finally, on submission of the questionnaires, checking with the respondents that they had completed all the items (Polit & Beck 2012:310-312).

#### 4.5.2.2.2 *Validity of the instrument*

*Validity* refers to the relevance of a measure, thus whether the instrument measures the concept it claims to measure (Babbie 2007:146; De Vos et al 2011:173; Polit & Beck 2012:745). Furthermore, validity refers to the usefulness, appropriateness and meaningfulness of the specific inferences made from test scores. Types of validity tested during this study included face, content, construct and criterion validity.

- *Face validity*

According to De Vos et al (2011:174), face validity refers to the verification that the instrument measures the content desired. Face validity is also described by Polit and Beck (2012:728) as “whether the instrument *looks* as though it is measuring the appropriate construct”. Face validity in this study was enhanced by presenting the instrument prior to, during and after the pre-test study to experts for their comments and recommendations. The technical presentation, instrument design according to the layout, paper colour and quality, typographic quality, method of reproduction, clarity of instructions, relevance, ease of completion and completion time were evaluated by the said experts.

Ambiguity of questions was eliminated by a post-pre-test questionnaire (see Annexure F) after the pre-test study. Respondents were requested to indicate, under the section entitled “formulation of the questions”, whether the questions were clearly stated, understandable and relevant. Following the written post-pre-test, a 10-minute post-pre-test discussion was held with the respondents to discuss confusing or unclear questions. Corrections were then made to some questions, which improved the face validity of the instrument (Polit & Beck 2012:728).

The maintaining of the dichotomous structure of the instrument, as provided for by the conceptual model (indicated previously) was paramount to the researcher. The developing of the polar nature of the SDS proved to be a truly worthwhile exercise, as it forced the researcher to think creatively and construct statement items that represented the same mental image in both the defensive and supportive communication behaviour domains. Thus the SDS items were implemented, as designed from the improved polar statements contained in the SDS.

- *Content validity*

Content validity, according to Babbie (2007:147), De Vos et al (2011:173) and Polit and Beck (2012:723), refers to the extent to which the method of measurement includes all the major elements relevant to the construct being measured; thus in this case, whether the instrument contains an appropriate sample of items for the construct being measured. In this study, content validity was enhanced by identifying the concepts grounded in the six conceptual continuums during the developmental phase of the current study, using the original criteria.

The original criteria contained in the Gibb's model were substantiated and elaborated on (Chinn & Kramer 2011:180) by means of a literature study, as outlined in chapters 2 and 3. National and international literature was included in the literature study in the form of books, articles, other relevant theories and research studies (Brink et al 2012:76-77; Polit & Beck 2012:95-96).

The literature study also involved the refinement and adaptation of all the concepts (Chinn & Kramer 2008:246-248) contained in the conceptual framework (see section 3.2).

Experts were approached prior to, during and after the development and testing of the items, to examine the instrument with regard to whether the items measured what they were supposed to measure (Polit & Beck 2010:345).

Respondents provided written and verbal feedback after the pre-test study on a specifically constructed post-pre-test content validity scale (see Annexure F), regarding the content of the items (Brink et al 2012:174-175).

- *Construct validity*

De Vos et al (2011:175) and Polit and Beck (2012:723) explain a construct as an abstraction or concept that is deliberately invented or constructed by the researcher for a scientific purpose, and construct validity as referring to the degree to which the instrument measures the construct under investigation.

Constructs, according to Polit and Beck (2012:723) are explained in terms of other concepts, and researchers make predictions about the manner in which the target construct will function in relation to other constructs. Construct validity in this study was enhanced by presenting the instrument prior to, during and after the pre-test study to experts, to evaluate the constructs and the items formulated for the questionnaire.

Owing to the utter dependence of the construct validity of the measure on the existence of appropriate operational definitions, it was ensured that all operational definitions used in this study flowed directly from the theoretically based conceptual definitions (Babbie 2007:14).

The construct validity of the instrument was only tested in the testing phase of the study (as a large number of respondents are required to test construct validity); this will be discussed in section 6.3 of Chapter 6.

- *Criterion validity*

The degree to which scores on an instrument are correlated with some external criteria is referred to as criterion validity. Whether an instrument is a useful predictor of other behaviour, experiences and conditions is usually, according to De Vos et al (2011:174) and Polit and Beck (2012:337), a defining aspect of criterion validity. It is assumed that if the scores of a respondent indicate a defensive orientation on one conceptual continuum there will also be an indication of a defensive orientation on the other continuums.

#### *4.5.2.2.3 Procedures for the administration of the questionnaire*

With reference to creating an atmosphere conducive for the administration of the questionnaire, the principles of physical safety and psychological safety are discussed in the sections to follow.

- *Physical safety*

A safe physical climate was created prior to the administration of the questionnaire by using a room in each of the three selected hospitals to conduct the administration of the questionnaires, during the official break times of the respondents. In each room the physical comfort of the respondents was ensured by providing enough ventilation and light, water and water glasses, sufficient seating, writing equipment and sufficient consent forms and questionnaires. Each respondent signed one consent form. The signed consent forms were returned, without the names of respondents on them, and separated from the questionnaires, to ensure anonymity of the respondents.

- *Psychological safety*

Psychological safety was ensured and maintained during the administration of the questionnaire by the researcher's personally administering all the questionnaires to small groups of respondents at a time, using only his private time. The researcher kept to the pre-arranged time and dates. He planned forty minutes for each administration of questionnaire session, so as to allow sufficient time to explain the study and the instructions for the completion of the questionnaire.

The researcher made the respondents feel at ease and created a non-threatening environment by introducing himself to the respondents and building a rapport with them. He provided a detailed verbal and written outline of the study, including the aim, methodology, ethical considerations and the rights of the respondents. He explained the consent form (Annexure D) in detail to the respondents and made them aware in particular of the option to terminate their participation in the research study at any time, as some of them were initially not very keen on participating in the research study.

A detailed explanation was provided on how to complete the questionnaire (stressing that the personal opinions and preferences of the respondents were required) and the importance of the completeness of the responses were emphasised. The one agreement (Annexure D) signed by all the respondents signified an agreement between the respondents and the researcher. To enhance the initial rapport, the researcher thanked the respondents for their willingness to participate in the study.



## **4.6 DATA ANALYSIS**

In this study data were analysed by means of descriptive statistics (such as tables, measures of central tendency and standard deviation) and inferential statistics (such as Cronbach's Alpha coefficient correlation, one-way ANOVA, *F*-tests, *t*-tests and Tukey-Kramer tests (Brink et al 2012:191; Burns & Grove 2009: 505; Polit & Beck 2012:416-418). Furthermore, the Statistical Analysis System (SAS JMP) version 12.0 was used for data analysis. The results of the testing of the measuring instrument are reported in detail in Chapter 6.

## **4.7 APPROACH TO GUIDELINE DEVELOPMENT**

The development and validation of guidelines for the development of a supportive communication climate in public hospitals was the final objective of this study. According to De Swardt (2012:49) and Newell and Burnard (2006:236), guidelines can be described as a systematic development of statements to assist individuals (such as professional nurses) in the process of deciding on the best option in a specific clinical setting. There are various strategies for developing guidelines, such as case studies, expert opinions, systematic reviews and meta-analyses (De Swardt 2012:49; Leech, Van Wyk & Uys 2007:104; Polit & Beck 2010: 32). Irrespective of what method is selected to develop the guidelines, the guidelines must be founded on research evidence (De Swardt 2012:49; Leech et al 2007:106).

Guidelines for this study were developed by extracting evidence from the qualitative data obtained from the extensive literature reviews (see chapters 2 and 3), as well as from the quantitative data obtained through the application of the newly developed measuring instrument (see chapters 5 and 6), using a process of logical reasoning.

The validation of the guidelines included requesting subject experts to evaluate the guidelines (De Swardt 2012:50; Mkhonta 2008:151). The guidelines were evaluated for proposed attributes such as credibility, applicability, comprehensiveness, completeness, clarity, reliability and cost-effectiveness (De Swardt 2012:50; Leech et al 2007:110). In this study, the Delphi panel of experts evaluated the guidelines against the literature reviews and the newly developed measuring instrument. The developed and validated guidelines for this study are reflected in Chapter 7.

## **4.8 ETHICAL CONSIDERATIONS**

During the testing phase the pertinent ethical issues included the acceptability of the instrument, informed consent, guarantee of privacy and scientific integrity.

### **4.8.1 Acceptability of the instrument**

The validity and reliability of the study may be enhanced through ethical acceptability. To ensure ethical acceptability, a letter was attached to the questionnaire to emphasise the aim of the study; the nature of the instrument; the advantages and disadvantages of completing the questionnaire; a guarantee of privacy by adhering to the principles of anonymity and confidentiality; written, voluntary, informed participation at all times and the signing of a consent form between the respondents and the researcher that underlined the right to written, informed and voluntary participation (Babbie 2007:64).

### **4.8.2 Informed consent**

De Vos et al (2011:117-118) and Polit and Beck (2012:157-160; 730), propose the principle of respect for human dignity; therefore all respondents participating in a research study have the right to be fully informed about all aspects pertaining to a study. Adhering to this principle, the researcher obtained written, voluntary, informed consent from respondents by means of a formal consent form (see Annexure D). This informed consent form explained the aim of the study, the methodology (procedures to be used), the time involved, the potential advantages and disadvantages to the respondents, as well as what their participation in the study would entail (De Vos et al 2011:117; Polit & Beck 2010:127). Written consent was also obtained from the Gauteng Department of Health (Annexure B (ii)) to undertake the pre-test and the testing phase of the research study.

### **4.8.3 Guarantee of privacy**

The guarantee of privacy is a guarantee given to respondents which means that they are able to think and behave without interference or the possibility that private thoughts or behaviour may be used to embarrass or belittle them at a later stage. The right to privacy accompanies the principle of justice (fair treatment). By applying the principles of anonymity and confidentiality, the researcher guaranteed the privacy and fair treatment of the respondents (De Vos et al 2011:119-121; Polit & Beck 2012:160-164).

#### **4.8.3.1 Anonymity**

Anonymity, according to Polit and Beck (2012:720), is an important ethical issue and means that even the researcher is unable to link the data reported to individual respondents. De Vos et al (2011:120) state that anonymity avoids biased responses from respondents because they are more inclined to divulge information if they are assured that their names will not be coupled with any of the data. The names of the respondents did not appear on any of the instruments during the testing phase, thus ensuring anonymity.

#### **4.8.3.2 Confidentiality**

According to Polit and Beck (2010:129), confidentiality is a pledge that “any information that participants provide will not be publicly reported in a manner that identifies them and will not be made accessible to others”. Thus, confidentiality means that none of the data divulged by the respondents will be made public or available to other people (De Vos et al 2011:119; Polit & Beck 2012:723). Access to raw data was limited to the researcher only, during the testing phase, to ensure confidentiality.

#### **4.8.4 Scientific integrity**

This study was conducted under the guidance of an experienced [supervisor](#), who ensured that the study adhered to acceptable ethical principles. No manipulation, fabrication or plagiarism occurred during the generation of evidence for the purposes of this study. In verification of his integrity, the researcher hereby declares that he has acknowledged in full all resources and reference materials utilised for the compilation of this research, to avoid the possibility of plagiarism.

Furthermore, ethical clearance was sought from the Higher Degrees Committee of the Department of Health Studies, University of South Africa (Annexure A), by presenting a research proposal for review, to ensure scientific rigour. Permission was also requested from the Director of the Department of Health of the Gauteng province (Annexure B), the Chief Executive Officers of the hospitals (Annexure C) in which the research was conducted, and from the respondents participating in the study (Annexure D).

## **4.9 CONCLUSION**

This chapter outlined the quantitative research paradigm underlying the study. A review of relevant literature was undertaken to develop the items for the measuring instrument (questionnaire) and a quantitative, non-experimental research design was undertaken to test the measuring instrument. The outline included a discussion of the research design, techniques and instrument, sampling design, pre-test study, validity and reliability prior to, during and after data collection. Finally, the ethical aspects applicable to this study were discussed.

Chapter 5 will outline the developmental phase of the study with regard to the development and the pre-testing of the measuring instrument.

## **CHAPTER 5**

### **SUMMARY OF THE DEVELOPMENT, PRE-TESTING AND RELIABILITY OF THE MEASURING INSTRUMENT**

#### **5.1 INTRODUCTION**

Chapter 4 outlined the quantitative research paradigm underlying the study with regard to the research design, techniques, instrument development, sampling design, pre-test study, validity and reliability, and ethical considerations for the study. This chapter presents a summary of the development of the measuring instrument (SDS), pre-testing of the measuring instrument (SDS), results of the pre-testing of the instrument (SDS) and reliability analysis of the items of the conceptual constructs.

#### **5.2 SUMMARY OF THE DEVELOPMENT OF THE MEASURING INSTRUMENT**

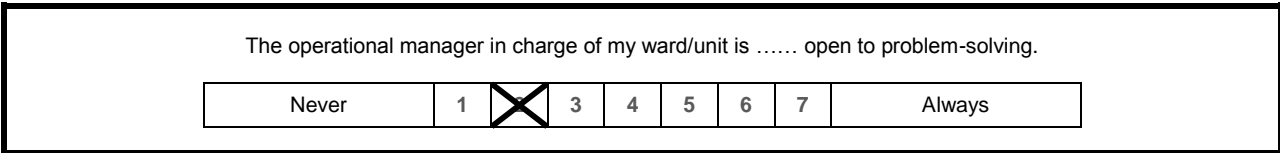
The main objective during the developmental phase was to develop a measuring instrument to assess the communication climate of professional nurses in public hospitals. Concepts obtained in the Gibb's Defensive Communication Climate Paradigm were identified, substantiated and expanded on (Brink et al 2012:56-57; Polit & Beck 2010:16-17) by conducting a literature review involving national and international literature that included books, articles and research studies (Brink et al 2012:74; Burns & Grove 2009:93-94; Polit & Beck 2010:171) and utilising the Delphi technique (a panel of experts). The developmental phase involved

- the refinement and adaptation of all the concepts (Chinn & Kramer 2011:165) contained in the Gibb's Defensive Communication Climate Paradigm (1961), the Communication Climate Focus and the six conceptual continuums, namely Evaluation-Description, Control-Problem Orientation, Strategy-Spontaneity, Neutrality-Empathy, Superiority-Equality, and Certainty-Provisionalism continuums
- incorporating the concepts into statements (Chinn & Kramer 2008:246-248; 2011:180) in a questionnaire format, a Semantic Differential Scale (SDS)
- developing a scale and instructions for the newly developed measuring instrument.

The researcher developed the SDS, (during the first Delphi round) by following three basic stages:

- In the first stage the statements for the analysed concepts had to be set. This was done by extrapolating the concepts from a qualitative literature review on the Gibb’s Defensive Communication Climate Paradigm (1961) and presenting these statements to the Delphi panel of experts for their perusal and comments.
- In the second stage an analysis and elimination of statements with the same meaning within the scales was done by an expert in linguistics and semantics.
- In the third stage, items were obtained for the selected statements. Once again the linguistic and semantic expert and the Delphi panel experts were requested to provide their inputs. This was done by developing a draft instrument and asking the experts to identify items and respective opposite items, for the two opposing poles. They were requested (in written format) to keep the items as simple as possible, use familiar words that were easily comprehensible and to avoid ambiguous, unknown and difficult items. From their inputs, the researcher included only the two items that obtained an agreement among the experts of more than 80 percent.

In this present study, respondents may be requested, for instance, to indicate the operational manager’s *Control-Problem orientation* to problem-solving on a scale similar to that depicted in figure 5.1:



**FIGURE 5.1: AN EXAMPLE OF A SEMANTIC DIFFERENTIAL SCALE ITEM**

Analysing the preceding example (Figure 5.1), the item on the left of the block (namely *Never*) represents a defensive communication orientation, compared with a supportive communication orientation represented by the item on the right of the block (namely *Always*). In reality the dimensions of the “X” might be in the second block, indicating that it is situated two blocks from the left and six blocks from the right on the scale. This indicates that, from a communication behaviour point of view, the respondent rated the operational managers as having a defensive communication behaviour orientation in this communication dimension.

The instrument (questionnaire) consisted of 70 statement items, as depicted in Table 5.2; constructed by using Semantic Differential Scale Items. The items are structured around the Gibb's Defensive Communication Climate Paradigm (1961). Table 5.1 indicates examples of the conceptual continuums.

**TABLE 5.1: EXAMPLES OF ITEMS CONTAINED IN GIBB'S CONCEPTUAL CONTINUUMS**

| Conceptual Continuums                 | Code | Question | Statement   | Defensive (Negative) Item | Supportive (Positive) Item |
|---------------------------------------|------|----------|---|---------------------------|----------------------------|
| Evaluative-Descriptive continuum      | C14  | Q4.      | I ..... label situations as good or bad in my ward/unit, during conversations.          | Always                    | Never                      |
| Control-Problem Orientation continuum | C28  | Q18.     | The operational manager in charge of my ward/unit ... adopts an authoritarian attitude. | Always                    | Never                      |
| Strategy-Spontaneity continuum        | C35  | Q25.     | I ..... distort what is being said in conversations with others in my ward/unit.        | Always                    | Never                      |
| Neutrality-Empathy continuum          | C50  | Q40.     | The operational manager in charge of my ward/unit ... respects the feelings of others.  | Always                    | Never                      |
| Superiority-Equality continuum        | C65  | Q55.     | I ..... respect the positions of others in my ward/unit during conversations.           | Always                    | Never                      |
| Certainty-Provisionalism continuum    | C77  | Q67.     | The operational manager in charge of my ward/unit ..... takes sides on issues.          | Always                    | Never                      |

### 5.2.1 Composition of the instrument

Each of the 70 statement items contained in the questionnaire has a defensive (negative) and a supportive (positive) pole. Thus there are an equal number of items measuring both aspects of the communication climate. Items numbered from C11 to 15 (Q1-5), C21 to 26 (Q11-16), C33 to 38 (Q23-28), C45 to 49 (Q35-39), C55 to 60 (Q45-50), C67 to 72 (Q57-62) and C79 (Q69) measure the professional nurses' own communication behaviour, while items numbered from C16 to 20 (Q6-10), C27 to 32 (Q17-22), C39 to 44 (Q29-34), C50 to 54 (Q40-44), C61 to 66 (Q51-56), C73 to 78 (Q63-68) and C80 (Q70) indicate the professional nurse's perception of operational manager communication behaviour.

**TABLE 5.2: TOTAL NUMBER OF ITEMS AND CORRESPONDING QUESTION NUMBERS FOR GIBB'S CONCEPTUAL CONTINUUMS (DISTRIBUTED IN THE DRAFTED QUESTIONNAIRE)**

| CONCEPTUAL CONTINUUMS                 | PROFESSIONAL NURSE DATA |                  | OPERATIONAL MANAGER DATA |                  |
|---------------------------------------|-------------------------|------------------|--------------------------|------------------|
|                                       | Items Total             | Question Numbers | Items Total              | Question Numbers |
| Evaluation-Description continuum      | 5                       | 1-5              | 5                        | 6-10             |
| Control-Problem Orientation continuum | 6                       | 11-16            | 5                        | 17-22            |
| Strategy-Spontaneity continuum        | 6                       | 23-28            | 5                        | 29-34            |
| Neutrality-Empathy continuum          | 5                       | 35-39            | 5                        | 40-44            |
| Superiority-Equality continuum        | 6                       | 45-50            | 5                        | 51-56            |
| Certainty-Provisionalism continuum    | 6                       | 57-62            | 5                        | 63-68            |
| General                               | 1                       | 69               | 1                        | 70               |
| <b>Total</b>                          | <b>35</b>               |                  | <b>35</b>                |                  |

Table 5.2 indicates the total number of items and the corresponding item numbers for the Gibb's conceptual continuums, with regard to the professional nurse and operational manager items. In addition, a specific number of items have been developed for each of the six Gibb's conceptual continuums.

### **5.2.2 Biographical data**

The only biographical information that was collected from the respondents during the pre-testing of the instrument (SDS) was the name of the public hospital and the nursing ward/unit.

### **5.2.3 Face validity of the measuring instrument**

To confirm the face validity of the measuring instrument, the researcher presented the instrument to the Delphi panel of experts (during the first round) to evaluate the content, the technical presentation and instrument design (implying the layout, quality and colour of the paper, methods of reproduction, typographic quality, clarity of instructions, relevance, ease of completion and completion time (see Annexure G).

## **5.3 SUMMARY OF THE PRE-TEST RESULTS OF THE MEASURING INSTRUMENT**

This section will present the results of the pre-testing of the measuring instrument during the developmental phase.

### **5.3.1 Pre-testing of the Semantic Differential Scale instrument**

The following framework will serve to discuss the testing of the measuring instrument:

- description of the instrument
- sampling design
- sampling method and size
- administration of the instrument, post-test questionnaires and a 10-minute discussion
- results of the testing of the measuring instrument (SDS) according to the analysis of the instrument, post-pre-test questionnaire and the 10-minute discussion.



### **5.3.1.1 Pre-testing the items using the Semantic Differential Scale (SDS)**

#### *5.3.1.1.1 Description of the SDS instrument*

A Semantic Differential Scale (SDS) and a number of items which respondents had to rank in order of preference (using a 1 to 7 scale) was the questionnaire format in which the items were contained. The differential and ranking scales were implemented for the enhancement of validity and reliability of the measuring instrument (SDS questionnaire). They can provide for finer measuring and are easy to construct, administer and to score (Burns & Grove 2009:412; De Vos et al 2011:212-213; Polit & Beck 2012:302).

A Semantic Differential Scale (SDS) seemed to be an obvious choice for the study, as the study leant towards a dichotomous nature, in this case between a supportive and a defensive communication climate within the public hospitals. Thus questions and/or items reflecting this dichotomous nature were required.

Statements constructed for the SDS formed the basis of the questionnaire. This scale is designed in such a way as to afford the respondents the opportunity to make a comparison between two items located on either side of the set statements and then choose either item (see Figure 5.1). Thus the pairs of items create a cognitive frame of mind within which the respondents had to make a choice. The two items indicated either a supportive or a defensive communication climate focus as maintained by respondents. The item pairs, as indicated previously, are synchronised with the dualistic and comparative nature of the Gibb's conceptual model on which the study is based. The researcher numbered the spaces on the scale of the measuring instrument (SDS) so as to award respondents an opportunity to indicate the extent to which they agreed or disagreed with the statement on the instrument.

Two sets of items were constructed within the SDS questionnaire (see Annexure E). The first set of items tested the respondents' communication behaviour (PN items), indicating their behaviour orientation regarding each conceptual continuum. An example of such a communication behaviour statement pair is item pair 14, where the respondents choose between the items *Always* or *Never* for the statement: "I ..... use straightforward language during conversations with others in my ward/unit".

In the second set of items (operational manager items), the researcher rephrased the previous items to test the respondent's perception of the communication behaviour orientation of operational managers as indicated by the six conceptual continuums. An example of such a perception statement pair is item pair 20 (corresponding to item pair 14), where respondents choose between the items *Always* or *Never* for the statement: "The operational manager in charge of my ward/unit ..... uses straightforward language".

It is advantageous to use the Semantic Differential Scale (SDS) because it is relatively simple to construct, administer and score. However, the disadvantage is that low Cronbach's Alpha scores are normally obtained with the use of SDS instruments (Tavakol & Dennick 2011:54), due to a low number of items or the poor interrelatedness of items.

#### *5.3.1.1.2 Discussion of the instrument prior to the pre-test study*

Before pre-testing the instrument using the Semantic Differential Scale, the researcher discussed the instrument with the Delphi panel, the language editor and the statistician. They suggested the following changes to the instrument:

- The Delphi panel members suggested that the font used on the instrument should be enlarged to accommodate respondents.
- The language editor suggested that second-language speakers might find some of the terminology on the questionnaire difficult and such terminology should be eliminated or replaced by more comprehensible terminology.
- The statistician suggested that the researcher reduce the number of questions from the original 120 questions to 70 questions, by eliminating questions that had similar meanings to others, in order to simplify the statistical analysis of the constructs and to increase the reliability of the instrument.

#### *5.3.1.1.3 Sampling design used for the pre-testing of the SDS instrument*

To enhance the validity, reliability and representativeness of the SDS measuring instrument, a random sampling design was selected (Brink et al 2012:134; Polit & Beck 2012:738).

#### *5.3.1.1.4 Sampling method and size used for the pre-testing of the SDS instrument*

A simple, random sample method was used to select the population for this pre-test study. The sampling frame consisted of all professional nurses in a selected public hospital in the Gauteng province. Thirty respondents, who met the sample eligibility criteria (see section 4.5.1.1) were then selected at random. A consecutively numbered name list of professional nurses obtained from the human resources department of this public hospital assisted in checking the eligibility of the population (Polit & Beck 2012:743).

#### *5.3.1.1.5 Administration of the SDS instrument during the pre-testing*

The researcher adhered to all the principles of proper questionnaire administration during the pre-test study. The researcher created a climate for the respondents which was conducive to the successful administration of a questionnaire, by ensuring a safe psychological and physical climate (see section 4.5.2.2.3). On a pre-arranged date, the draft SDS questionnaires were administered simultaneously to small groups of between two and five respondents in a private venue. A post-pre-test questionnaire was completed by respondents immediately after they had completed the SDS instrument and finally a 10-minute discussion was held.

### **5.3.2 Results of the pre-testing of the SDS instrument**

Despite the researcher's initial in-depth explanation of the study and how to complete the questionnaire; he observed that some respondents still found it difficult to do so. Asked why they had difficulty in completing the questionnaire, they indicated that they did not understand the instructions well. After another explanation of the instructions, the respondents understood how to complete the questionnaire. It was anticipated that the respondents would take a total of 30 minutes to complete only the questionnaire; however, to complete the entire administration of the instrument and the post-pre-test questionnaire took only 40 minutes.

The description of this procedure is detailed below:

- The researcher provided a detailed explanation of the study to the respondents and explained the instructions for the completion of the questionnaire to them in the first five minutes.
- The respondents took twenty minutes to complete the questionnaire, less than the total initially anticipated completion time for the Semantic Differential Scale.
- Another five minutes was used by the respondents to complete the post-pre-test questionnaire.
- After the completion of the post-pre-test, the researcher held a ten minute discussion with the respondents.

### **5.3.2.1 Outcomes of the SDS pre-test study**

The analysis of the pre-test SDS questionnaire indicated the following:

- It was difficult for respondents to decide exactly where to place themselves on the scale.
- Some respondents initially felt like using an “**X**” to mark extreme points on the scale.

The questionnaires were analysed and the following findings were indicated:

- All of the respondents filled in only one **X** in the space provided for the answers, in all of the questions, thus validating the findings and results of the questionnaire.
- Each questionnaire took 15 minutes to score, during the analysis of the questionnaire and the data capturing on the computer took a further 15 minutes, per questionnaire. The items were analysed as discussed in section 5.4.1. The analysis results of the pre-test SDS are displayed in Table 5.3.

From the results, in Table 5.3, it is clear that the majority of the respondents “favoured” a defensive climate in some instances and a supportive communication climate in other situations. It was important for the researcher to analyse the responses of the respondents in order to refine the layout and the items of the SDS questionnaire. Due to the limited number of respondents, however, it was impossible for the researcher to answer the three research questions from the results obtained in this pre-test.

**TABLE 5.3: RESULTS OF ANALYSIS OF THE PRE-TESTED SDS QUESTIONNAIRE (N = 30)\***

|                               | PROFESSIONAL NURSE     |                             |                      |                    |                      |                          |       |         |                        | OPERATIONAL MANAGER         |                      |                    |                      |                          |       |         |      |    | OVERALL TOTALS |
|-------------------------------|------------------------|-----------------------------|----------------------|--------------------|----------------------|--------------------------|-------|---------|------------------------|-----------------------------|----------------------|--------------------|----------------------|--------------------------|-------|---------|------|----|----------------|
|                               | Evaluation-Description | Control-Problem Orientation | Strategy-Spontaneity | Neutrality-Empathy | Superiority-Equality | Certainty-Provisionalism | Total | General | Evaluation-Description | Control-Problem Orientation | Strategy-Spontaneity | Neutrality-Empathy | Superiority-Equality | Certainty-Provisionalism | Total | General |      |    |                |
| Total number of Questions     | 5                      | 6                           | 6                    | 5                  | 6                    | 6                        | 34    | 1       | 5                      | 6                           | 6                    | 5                  | 6                    | 6                        | 34    | 1       | 70   |    |                |
| Respondent 1                  | Responses              | 4                           | 6                    | 6                  | 4                    | 4                        | 6     | 30      | 1                      | 4                           | 5                    | 5                  | 4                    | 5                        | 4     | 27      | 1    | 59 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 2                  | Responses              | 5                           | 6                    | 6                  | 5                    | 6                        | 6     | 34      | 1                      | 5                           | 6                    | 6                  | 5                    | 6                        | 6     | 34      | 1    | 70 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 3                  | Responses              | 5                           | 6                    | 5                  | 3                    | 5                        | 6     | 30      | 1                      | 5                           | 4                    | 5                  | 4                    | 4                        | 5     | 27      | 1    | 59 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 4                  | Responses              | 3                           | 3                    | 4                  | 4                    | 4                        | 1     | 19      | 1                      | 4                           | 3                    | 4                  | 4                    | 3                        | 4     | 22      | 1    | 43 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | D     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 5                  | Responses              | 4                           | 5                    | 6                  | 4                    | 5                        | 6     | 30      | 1                      | 4                           | 3                    | 5                  | 3                    | 4                        | 4     | 23      | 1    | 55 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 6                  | Responses              | 3                           | 5                    | 4                  | 4                    | 1                        | 2     | 19      | 1                      | 3                           | 4                    | 2                  | 3                    | 2                        | 0     | 14      | 0    | 34 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | D                        | D     | S       | S                      | S                           | S                    | D                  | S                    | D                        | D     | D       | D    | S  |                |
| Respondent 7                  | Responses              | 0                           | 3                    | 0                  | 1                    | 4                        | 5     | 13      | 0                      | 3                           | 2                    | 0                  | 1                    | 5                        | 4     | 15      | 0    | 28 |                |
|                               | Orientation            | D                           | S                    | D                  | D                    | S                        | D     | D       | D                      | S                           | D                    | D                  | D                    | S                        | S     | D       | D    | D  |                |
| Respondent 8                  | Responses              | 4                           | 5                    | 5                  | 5                    | 5                        | 4     | 28      | 1                      | 3                           | 6                    | 6                  | 4                    | 6                        | 4     | 29      | 1    | 59 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 9                  | Responses              | 5                           | 6                    | 5                  | 4                    | 2                        | 5     | 27      | 1                      | 3                           | 4                    | 2                  | 1                    | 3                        | 1     | 14      | 0    | 42 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | D                        | S     | S       | S                      | S                           | S                    | D                  | D                    | S                        | D     | D       | D    | S  |                |
| Respondent 10                 | Responses              | 3                           | 5                    | 1                  | 1                    | 4                        | 4     | 18      | 1                      | 4                           | 3                    | 0                  | 2                    | 3                        | 1     | 13      | 0    | 32 |                |
|                               | Orientation            | S                           | S                    | D                  | D                    | S                        | S     | S       | S                      | S                           | S                    | D                  | D                    | S                        | D     | D       | D    | D  |                |
| Respondent 11                 | Responses              | 5                           | 5                    | 4                  | 4                    | 5                        | 6     | 29      | 1                      | 3                           | 5                    | 4                  | 5                    | 2                        | 4     | 23      | 1    | 54 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | D                        | S     | S       | S    | S  |                |
| Respondent 12                 | Responses              | 2                           | 4                    | 1                  | 4                    | 6                        | 6     | 23      | 1                      | 2                           | 1                    | 1                  | 4                    | 6                        | 5     | 19      | 1    | 44 |                |
|                               | Orientation            | D                           | S                    | D                  | S                    | S                        | S     | S       | S                      | D                           | D                    | D                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 13                 | Responses              | 5                           | 6                    | 4                  | 1                    | 3                        | 2     | 21      | 1                      | 4                           | 4                    | 4                  | 2                    | 1                        | 0     | 15      | 0    | 37 |                |
|                               | Orientation            | S                           | S                    | S                  | D                    | S                        | D     | S       | S                      | S                           | S                    | S                  | D                    | D                        | D     | D       | D    | S  |                |
| Respondent 14                 | Responses              | 2                           | 4                    | 6                  | 3                    | 5                        | 3     | 23      | 1                      | 4                           | 5                    | 4                  | 5                    | 2                        | 3     | 23      | 1    | 48 |                |
|                               | Orientation            | D                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | D                        | S     | S       | S    | S  |                |
| Respondent 15                 | Responses              | 5                           | 5                    | 6                  | 5                    | 3                        | 5     | 29      | 1                      | 5                           | 6                    | 4                  | 2                    | 3                        | 1     | 21      | 1    | 52 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | D                    | S                        | D     | S       | S    | S  |                |
| Respondent 16                 | Responses              | 4                           | 3                    | 3                  | 2                    | 3                        | 6     | 21      | 1                      | 1                           | 3                    | 0                  | 2                    | 6                        | 6     | 18      | 1    | 41 |                |
|                               | Orientation            | S                           | S                    | S                  | D                    | D                        | S     | S       | S                      | D                           | S                    | D                  | D                    | S                        | S     | S       | S    | S  |                |
| Respondent 17                 | Responses              | 2                           | 3                    | 6                  | 5                    | 5                        | 4     | 25      | 1                      | 4                           | 5                    | 6                  | 4                    | 5                        | 4     | 28      | 1    | 55 |                |
|                               | Orientation            | D                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 18                 | Responses              | 3                           | 4                    | 4                  | 2                    | 1                        | 3     | 17      | 1                      | 1                           | 3                    | 1                  | 0                    | 3                        | 0     | 8       | 0    | 26 |                |
|                               | Orientation            | S                           | S                    | S                  | D                    | D                        | S     | S       | S                      | D                           | S                    | D                  | D                    | S                        | D     | D       | D    | D  |                |
| Respondent 19                 | Responses              | 5                           | 6                    | 5                  | 5                    | 5                        | 6     | 32      | 1                      | 4                           | 6                    | 6                  | 5                    | 6                        | 6     | 33      | 1    | 67 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 20                 | Responses              | 3                           | 5                    | 3                  | 4                    | 5                        | 3     | 23      | 1                      | 0                           | 3                    | 3                  | 2                    | 3                        | 2     | 13      | 0    | 37 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | D                           | S                    | S                  | D                    | S                        | D     | D       | D    | S  |                |
| Respondent 21                 | Responses              | 1                           | 3                    | 1                  | 2                    | 1                        | 1     | 9       | 0                      | 2                           | 3                    | 3                  | 0                    | 1                        | 0     | 9       | 0    | 18 |                |
|                               | Orientation            | D                           | S                    | D                  | D                    | D                        | D     | D       | D                      | D                           | S                    | S                  | D                    | D                        | D     | D       | D    | D  |                |
| Respondent 22                 | Responses              | 3                           | 4                    | 4                  | 4                    | 5                        | 6     | 26      | 1                      | 3                           | 3                    | 4                  | 4                    | 5                        | 5     | 24      | 1    | 52 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 23                 | Responses              | 4                           | 4                    | 1                  | 1                    | 0                        | 2     | 12      | 0                      | 2                           | 1                    | 1                  | 1                    | 1                        | 3     | 9       | 0    | 21 |                |
|                               | Orientation            | S                           | S                    | D                  | D                    | D                        | D     | D       | D                      | D                           | D                    | D                  | D                    | D                        | S     | D       | D    | D  |                |
| Respondent 24                 | Responses              | 3                           | 5                    | 4                  | 4                    | 4                        | 4     | 24      | 1                      | 4                           | 2                    | 4                  | 3                    | 4                        | 3     | 20      | 1    | 46 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | D                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 25                 | Responses              | 4                           | 6                    | 6                  | 5                    | 5                        | 6     | 32      | 1                      | 5                           | 6                    | 6                  | 5                    | 6                        | 5     | 33      | 1    | 67 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 26                 | Responses              | 4                           | 5                    | 4                  | 2                    | 3                        | 2     | 20      | 1                      | 4                           | 5                    | 2                  | 1                    | 2                        | 2     | 16      | 0    | 37 |                |
|                               | Orientation            | S                           | S                    | S                  | D                    | S                        | D     | S       | S                      | S                           | S                    | D                  | D                    | D                        | D     | D       | D    | S  |                |
| Respondent 27                 | Responses              | 3                           | 5                    | 2                  | 4                    | 5                        | 5     | 24      | 1                      | 4                           | 4                    | 0                  | 4                    | 5                        | 4     | 21      | 1    | 47 |                |
|                               | Orientation            | S                           | S                    | D                  | S                    | S                        | S     | S       | S                      | S                           | S                    | D                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 28                 | Responses              | 5                           | 5                    | 3                  | 4                    | 5                        | 4     | 26      | 1                      | 3                           | 4                    | 4                  | 5                    | 4                        | 2     | 22      | 1    | 50 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | D     | S       | S    | S  |                |
| Respondent 29                 | Responses              | 5                           | 6                    | 6                  | 4                    | 5                        | 6     | 32      | 1                      | 4                           | 6                    | 5                  | 3                    | 3                        | 4     | 25      | 1    | 59 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Respondent 30                 | Responses              | 4                           | 6                    | 6                  | 4                    | 3                        | 6     | 29      | 1                      | 5                           | 5                    | 5                  | 3                    | 6                        | 5     | 29      | 1    | 60 |                |
|                               | Orientation            | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S    | S  |                |
| Total of Supportive responses | 108                    | 144                         | 121                  | 104                | 117                  | 131                      | 725   | 27      | 102                    | 120                         | 102                  | 91                 | 115                  | 97                       | 627   | 20      | 1399 |    |                |
| Totals of All responses (n)   | 150                    | 180                         | 180                  | 150                | 180                  | 180                      | 1020  | 30      | 150                    | 180                         | 180                  | 150                | 180                  | 180                      | 1020  | 30      | 2100 |    |                |

### **5.3.2.2 Results of the post-pre-test questionnaire**

Analysis of the post-pre-test questionnaire using the SDS instrument indicated that:

#### *5.3.2.2.1 The research study*

- Most respondents indicated their satisfaction with the way in which the researcher had explained the research study to them.

#### *5.3.2.2.2 The SDS questionnaire*

- Explanation of the questionnaire: Most respondents indicated their satisfaction with the explanation of the SDS questionnaire.
- Technical presentation of the questionnaire: Respondents were satisfied with the layout of the SDS questionnaire; however the numbered blocks confused them.
- Instructions for the Semantic Differential ranking scale: Respondents indicated that they understood the instructions for completing the ranking items in the questionnaire. However, a physical examination performed on the questionnaire revealed that some respondents might have understood the instructions but merely responded by marking the items strictly in numerical order, without giving thought to the real preferences of these items within the questionnaire. (Unlike in the pre-test study, most respondents in the actual study indicated that they understood the instructions for completing the ranking items in the questionnaire and did not merely mark the items in numerical order, but actually marked their real preferences. This might have been due to the researcher's explaining the instrument in detail).
- Time required for completion of the questionnaire: The respondents indicated that the time allocated to complete the SDS questionnaire was adequate, as the instructions were clear. It took the respondents twenty minutes to complete the questionnaire.
- Formulation of the questions: The respondents indicated that they understood the questions. Some respondents stated that there appeared to be a repetition of questions, which confused them, but the researcher explained to them that the questions were set in such a way as to enhance the validity and reliability of the SDS questionnaire. Some of the respondents still indicated that they did not understand all of the questions.

### 5.3.2.2.3 *Additional comments by the respondents*

- The numbered blocks on the Semantic Differential Scale confused some respondents.
- Some respondents believed that another type of scale (such as Likert scale) would have been easier to answer.
- Some respondents stated that word choices, for example: *Never*, *Seldom*; *Sometimes*; *Often* and *Always* to indicate their preferences, might have been better.
- Respondents hoped that any information from this research would be used at the hospital to help them to communicate better with operational managers.

### 5.3.2.3 *The 10-minute discussion*

The researcher held a 10-minute discussion with the respondents, after they had completed the pre-test questionnaire. The respondents explained the following:

- The concept *Semantic* was difficult to interpret; they could not decide on which side of the scale they should mark their responses. All of the respondents indicated that they found a lot of the paired items appearing to sound the same. The researcher explained that each question was different, although they might sound similar. Following this explanation, the respondents agreed that the questions did differ.
- The respondents expressed a wish for the answers to the questions relating to operational managers to be noted and responded to; they prefer operational managers to behave according to the supportive communication items in the questionnaire.
- The respondents all indicated that it was relatively easy to complete the questionnaire. The researcher viewed this as an important remark, because if respondents had become confused or frustrated by the wording and the amount of the items, they could have become rash in answering the questions. Rash and careless answering of the questions could impact negatively on the reliability of the data obtained.
- One of the respondents mentioned that she would have liked a wider option to choose from and not only two choices, because she felt that at times her answer did not resort in either of the two. The researcher explained that it was imperative to retain the dichotomous structure of the questionnaire and that her answer should be focused on the pole that resembled the behaviour orientation the most closely. After this explanation the respondent understood and indicated that this was the approach that she had followed during her completion of the SDS questionnaire.

## 5.4 RELIABILITY OF THE MEASURING INSTRUMENT (SDS QUESTIONNAIRE)

The reliability of an instrument relates mainly to the items (questions) measuring the constructs under investigation. In the current study, these constructs (Gibb's conceptual continuums) entail the communication climate focus of professional nurses at three public hospitals.

### 5.4.1 Coding of responses for the pre-test study

In an effort to combine the responses marked on the 7 levels of the SDS into a set of scores, the researcher coded all the questions on the computer in the following manner:

- Responses marked on levels 1 – 3 are deemed defensive responses.
- Responses marked on level 4 are deemed neutral (undecided) responses.
- Responses marked on levels 5 – 7 are deemed supportive responses.

It was necessary that all defensive communication behaviour items and responses be coded consistently and all the supportive communication behaviour items and responses be coded in the same way. Furthermore, the reader is reminded that it was required of the respondents to provide *their own communication behaviour orientation* and *their perception* of the *communication behaviour orientation of the operational managers* in the wards/units in which they were working. During the presentation and discussion of the data and findings, “professional nurse” indicates respondents’ own communication behaviour orientation and “operational manager” indicates respondents’ perceptions of operational manager communication behaviour orientation.

### 5.4.2 Reliability

Reliability refers to the consistency and accuracy with which an instrument measures the variables being tested (Brink et al 2012:169-170; Polit & Beck 2012:741). When measuring a construct, the raw score obtained is referred to as the observed score. The observed score of an individual differs from the true score, due to an error component. Defining the relationship between the scores will deliver the following: observed score = true score + error component (Polit & Beck 2012:330). Reliability as such was discussed in section 4.5.2.1. A Cronbach's Alpha reliability analysis (Brink et al 2012:191; Polit & Beck 2010:427-428) and kappa (interrater agreement) (Fleiss 1981) tests were performed and the results are discussed in the following section.



### 5.4.3 Results of the Cronbach's Alpha reliability analysis

To test the reliability of each of the six conceptual continuum constructs, a Cronbach's Alpha correlation coefficient test was performed. The Cronbach's Alpha is a reliability index that estimates the internal consistency or homogeneity of a measure comprising several items or subparts, and refers to construct reliability (Polit & Beck 2012:724; UCLA 2010:2). Usually a level of 0.7 or higher is an accepted level of measurement (Tavokol & Dennick 2011:54; UCLA 2010:2).

During the Cronbach's Alpha analysis, items were grouped according to the profile set by the conceptual framework (six conceptual continuums) as described in Chapter 2. A Cronbach's Alpha reliability analysis was performed in order to establish whether the respondents were on the whole consistent in their answers, and whether the respondents marked all the items of the construct in the same direction. Thus the researcher wanted to determine whether a respondent who selected mostly defensive communication behaviour responses was basically defensive, and vice versa for a respondent who selected mostly supportive communication behaviour responses. Cronbach's Coefficient Alpha that is reliable will confirm that the individual items of a dimension consistently measured the same dimension or concepts. The reliability analysis was done according to the Item-Total statistics for all scale: variables and according to scale statistics. The overall Cronbach's Alpha reliability coefficient results for the constructs (Gibb's conceptual continuums) appear in Table 5.4.

**TABLE 5.4: CRONBACH'S ALPHA RELIABILITY COEFFICIENT RESULTS FOR THE SIX GIBB'S CONCEPTUAL CONTINUUMS**

| Gibb's conceptual continuums              | Question numbers | Number of items | Alpha reliability coefficient |
|---|------------------|-----------------|-------------------------------|
| PN: Evaluation-Description Continuum      | 1 – 5            | 5               | 0.884                         |
| PN: Control-Problem Orientation Continuum | 11 – 16          | 6               | 0.884                         |
| PN: Strategy-Spontaneity Continuum        | 23 – 28          | 6               | 0.906                         |
| PN: Neutrality-Empathy Continuum          | 35 – 39          | 5               | 0.845                         |
| PN: Superiority-Equality Continuum        | 45 – 50          | 6               | 0.856                         |
| PN: Certainty-Provisionalism Continuum    | 57 – 62          | 6               | 0.909                         |
| OM: Evaluation-Description Continuum      | 6 – 10           | 5               | 0.839                         |
| OM: Control-Problem Orientation Continuum | 17 – 22          | 6               | 0.847                         |
| OM: Strategy-Spontaneity Continuum        | 29 – 34          | 6               | 0.876                         |
| OM: Neutrality-Empathy Continuum          | 40 – 44          | 5               | 0.868                         |
| OM: Superiority-Equality Continuum        | 51 – 56          | 6               | 0.870                         |
| OM: Certainty-Provisionalism Continuum    | 63 – 68          | 6               | 0.889                         |

p < 0.05 level    PN = Professional nurse    OM = Operational manager

The Cronbach's Alpha statistic, as depicted in Table 5.4, should be at least above 0.6 and preferably above 0.8. Such results were prevalent in all of the constructs as portrayed in Table 5.4. None of the constructs delivered readings below 0.8, indicating that they all had a high reliability. When a binary response (a response with only two possible answers) is selected, the Cronbach's Alpha can sometimes be lower than 0.8. The Cronbach's Alpha coefficient, according to Table 5.4, was found to be:

- Highest for the constructs: professional nurse: Strategy-Spontaneity (0.906) and professional nurse: Certainty-Provisionalism (0.909) (see Table 5.5).
- High for the constructs: professional nurse: Evaluation-Description (0.884); operational manager: Evaluation-Description (0.839); professional nurse: Control-Problem-Orientation (0.884); operational manager: Control-Problem Orientation (0.847); operational manager: Strategy-Spontaneity (0.876); professional nurse: Neutrality-Empathy (0.845); operational manager: Neutrality-Empathy (0.868); professional nurse: Superiority-Equality (0.856); operational manager: Superiority-Equality (0.870) and operational manager: Certainty-Provisionalism (0.899) (see Table 5.5).

Binary data usually deliver low readings but in this case they delivered the opposite. Although this instrument shows potential, it must still be subjected to further refinement processes. In support of the latter view, Polit and Beck (2012:331) suggest that applying greater precision in defining categories could improve the reliability of measurement scales. Throughout the present study defining the categories with great precision was viewed by the researcher as being of paramount importance. In this measuring instrument (SDS questionnaire), the researcher attempted to create a balance between the questions, as was done in previous questionnaires utilising the Gibb's conceptual framework as foundation. The Cronbach's Alpha reliability testing for this instrument yielded high scores on all of the constructs.

A possible reason for a high reliability reading during a study could be a lack of homogeneity of the sample it is being administered to. The more homogeneous the sample (the more similar the scores), the lower the reliability coefficient will be (Burns & Grove 2009:379-380; Polit & Beck 2012:335). It must be borne in mind that the Cronbach's Alpha is designed to measure differences between those respondents who are being measured, and therefore reliability can be low.

It is more difficult for both the Cronbach's Alpha and the instrument to discriminate reliability among those who possess varying degrees of the attribute being measured, if the sample is a homogeneous one. Although the reliability of the measuring scales seems high, it must be noted that they could also gravitate towards a lower degree of reliability due to the binary nature of the data. Therefore it might be a successful option to use this SDS questionnaire in its draft form as it allows for more refined discrimination in the case where respondents answered all the items in an honest manner. To ensure the reliability of responses, the researcher rechecked the answers termed "defensive" and those termed "supportive". An example of this rechecking process is:

**Question 69:** I can describe my overall communication behaviour towards others in my ward/unit as .....

- **Defensive**
- **Supportive**

#### **5.4.3.1 Reliability results for the construct: Evaluation-Description Continuum**

The construct reliability (internal consistency) for the construct: Evaluation-Description was tested with item analysis. These results are presented as Item-Total reliability results of Items C11-15: professional nurse: Evaluation-Description Continuum and Item-Total reliability results of Items C16-20: operational manager: Evaluation-Description Continuum.

##### **5.4.3.1.1 Item-Total reliability results of Items C11-15: professional nurse: Evaluation-Description Continuum**

Table 5.5 depicts the Item-Total reliability results of Items C11-15: professional nurse: Evaluation-Description Continuum.

**TABLE 5.5: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C11-15: PROFESSIONAL NURSE: EVALUATION-DESCRIPTION CONTINUUM (N = 30)**

| Professional nurse: Evaluation-Description Continuum |            | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|--|------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C11  | Question 1 | 30 | 17.47                      | 24.189                         | 0.830                            | 0.845                            |
| C12  | Question 2 | 30 | 17.57                      | 22.737                         | 0.760                            | 0.851                            |
| C13  | Question 3 | 30 | 17.93                      | 22.754                         | 0.705                            | 0.863                            |
| C14  | Question 4 | 30 | 19.37                      | 20.033                         | 0.737                            | 0.862                            |
| C15  | Question 5 | 30 | 18.47                      | 23.637                         | 0.644                            | 0.876                            |
|  | Valid N    | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.5, the overall Cronbach's Alpha for the construct (C11-15) was 0.884. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that none of the statements delivered a score higher than the overall Cronbach's Alpha (0.884) and therefore none of the statements needed to be removed to improve the reliability of the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.884).

#### 5.4.3.1.2 *Item-Total reliability results of Items C16-20: operational manager: Evaluation-Description Continuum*

Table 5.6 depicts the Item-Total reliability results of Items C16-20: operational manager: Evaluation-Description Continuum.

**TABLE 5.6: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C16–20: OPERATIONAL MANAGER: EVALUATION-DESCRIPTION CONTINUUM (N = 30)**

| Operational manager: Evaluation-Description Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|-------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C16   | Question 6  | 30 | 17.17                      | 15.454                         | 0.632                            | 0.810                            |
| C17   | Question 7  | 30 | 17.53                      | 15.016                         | 0.609                            | 0.815                            |
| C18   | Question 8  | 30 | 19.67                      | 13.678                         | 0.618                            | 0.818                            |
| C19   | Question 9  | 30 | 17.83                      | 14.213                         | 0.683                            | 0.795                            |
| C20   | Question 10 | 30 | 17.13                      | 14.947                         | 0.694                            | 0.795                            |
|   | Valid N     | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.6, the overall Cronbach's Alpha for the construct (C16-20) was 0.839. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that none of the statements delivered a score higher than the overall Cronbach's Alpha (0.839) and therefore none of the statements needed to be removed to improve the reliability of the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.839).

### 5.4.3.2 Reliability results for the construct: Control-Problem Orientation Continuum

The construct reliability (internal consistency) for the construct: Control-Problem Orientation was tested with item analysis. These results are presented as Item-Total reliability results of Items C21-26: professional nurse: Control-Problem Orientation Continuum and Item-Total reliability results of Items C27-32: operational manager: Control-Problem Orientation Continuum.

#### 5.4.3.2.1 Item-Total reliability results of Items C21-26: professional nurse: Control-Problem Orientation Continuum

Table 5.7 depicts the Item-Total reliability results of Items C21-26: professional nurse: Control-Problem Orientation Continuum.

**TABLE 5.7: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C21–26: PROFESSIONAL NURSE: CONTROL-PROBLEM ORIENTATION CONTINUUM (N = 30)**

| Professional nurse: Control-Problem Orientation Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|-------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C21   | Question 11 | 30 | 23.93                      | 19.926                         | 0.766                            | 0.852                            |
| C22   | Question 12 | 30 | 24.53                      | 20.189                         | 0.622                            | 0.878                            |
| C23   | Question 13 | 30 | 25.97                      | 16.309                         | 0.741                            | 0.874                            |
| C24   | Question 14 | 30 | 23.93                      | 21.168                         | 0.704                            | 0.864                            |
| C25   | Question 15 | 30 | 23.70                      | 22.769                         | 0.840                            | 0.861                            |
| C26   | Question 16 | 30 | 23.77                      | 21.978                         | 0.794                            | 0.858                            |
| Valid N   |             | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.7, the overall Cronbach's Alpha for the construct (C21-26) was 0.884. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that none of the statements delivered a score higher than the overall Cronbach's Alpha (0.884) and therefore none of the statements needed to be removed to improve the reliability of the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.884).

5.4.3.2.2 *Item-Total reliability results of Items C27-32: operational manager: Control-Problem Orientation Continuum*

Table 5.8 depicts the Item-Total reliability results of Items C27-32: operational manager: Control-Problem Orientation Continuum.

**TABLE 5.8: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C27–32: OPERATIONAL MANAGER: CONTROL PROBLEM ORIENTATION CONTINUUM (N = 30)**

| Operational manager: Control-Problem Orientation Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|--|-------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C27  | Question 17 | 30 | 22.17                      | 23.109                         | 0.751                            | 0.799                            |
| C28  | Question 18 | 30 | 23.37                      | 19.206                         | 0.783                            | 0.793                            |
| C29  | Question 19 | 30 | 22.00                      | 25.517                         | 0.586                            | 0.831                            |
| C30  | Question 20 | 30 | 21.97                      | 27.068                         | 0.476                            | 0.848                            |
| C31  | Question 21 | 30 | 21.40                      | 23.559                         | 0.676                            | 0.813                            |
| C32  | Question 22 | 30 | 21.27                      | 26.547                         | 0.541                            | 0.838                            |
|  | Valid N     | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.8, the overall Cronbach's Alpha for the construct (C27-32) was 0.847. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that none of the statements delivered a score higher than the overall Cronbach's Alpha (0.847) and therefore none of the statements needed to be removed to improve the reliability of the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.847).

**5.4.3.3 *Reliability results for the construct: Strategy-Spontaneity Continuum***

The construct reliability (internal consistency) for the construct: Strategy-Spontaneity was tested with item analysis. These results are presented as Item-Total reliability results of Items C33-38: professional nurse: Strategy-Spontaneity Continuum and Item-Total reliability results of Items C39-44: operational manager: Strategy-Spontaneity Continuum.

5.4.3.3.1 *Item-Total reliability results of Items C33-38: professional nurse: Strategy-Spontaneity Continuum*

Table 5.9 depicts the Item-Total reliability results of Items C33-38: professional nurse: Strategy-Spontaneity Continuum.

**TABLE 5.9: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C33–38: PROFESSIONAL NURSE: STRATEGY-SPONTANEITY CONTINUUM (N = 30)**

| Professional nurse: Strategy-Spontaneity Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|--|-------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C33  | Question 23 | 30 | 21.43                      | 31.220                         | 0.780                            | 0.885                            |
| C34  | Question 24 | 30 | 21.57                      | 31.082                         | 0.697                            | 0.896                            |
| C35  | Question 25 | 30 | 22.33                      | 29.954                         | 0.760                            | 0.887                            |
| C36  | Question 26 | 30 | 23.03                      | 28.240                         | 0.744                            | 0.891                            |
| C37  | Question 27 | 30 | 22.27                      | 30.892                         | 0.757                            | 0.888                            |
| C38  | Question 28 | 30 | 22.37                      | 30.585                         | 0.733                            | 0.891                            |
|  | Valid N     | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.9, the overall Cronbach's Alpha for the construct (C33-38) was 0.906. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that none of the statements delivered a score higher than the overall Cronbach's Alpha (0.906) and therefore none of the statements needed to be removed to improve the reliability of the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.906).

5.4.3.3.2 *Item-Total reliability results of Items C39-44: operational manager: Strategy-Spontaneity Continuum*

Table 5.10 depicts the Item-Total reliability results of Items C39-44: operational manager: Strategy-Spontaneity Continuum.

**TABLE 5.10: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C39–44: OPERATIONAL MANAGER: STRATEGY-SPONTANEITY CONTINUUM (N = 30)**

| Operational manager: Strategy-Spontaneity Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|-------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C39   | Question 29 | 30 | 19.70                      | 28.838                         | 0.771                            | 0.840                            |
| C40   | Question 30 | 30 | 20.10                      | 32.714                         | 0.593                            | 0.869                            |
| C41   | Question 31 | 30 | 20.60                      | 28.662                         | 0.686                            | 0.855                            |
| C42   | Question 32 | 30 | 20.50                      | 29.638                         | 0.694                            | 0.853                            |
| C43   | Question 33 | 30 | 21.20                      | 30.924                         | 0.576                            | 0.873                            |
| C44   | Question 34 | 30 | 20.23                      | 29.357                         | 0.787                            | 0.838                            |
|   | Valid N     | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.10, the overall Cronbach's Alpha for the construct (C39-44) was 0.876. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that none of the statements delivered a score higher than the overall Cronbach's Alpha (0.876) and therefore none of the statements needed to be removed to improve the reliability of the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.876).

#### **5.4.3.4 Reliability results for the construct: Neutrality-Empathy Continuum**

The construct reliability (internal consistency) for the construct: Neutrality-Empathy was tested with item analysis. These results are presented as Item-Total reliability results of Items C45-49: professional nurse: Neutrality-Empathy Continuum and Item-Total reliability results of Items C50-54: operational manager: Neutrality-Empathy Continuum.

##### **5.4.3.4.1 Item-Total reliability results of Items C45-49: professional nurse: Neutrality-Empathy Continuum**

Table 5.11 depicts the Item-Total reliability results of Items C45-49: professional nurse: Neutrality-Empathy Continuum.



**TABLE 5.11: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C45–49: PROFESSIONAL NURSE: NEUTRALITY-EMPATHY CONTINUUM (N = 30)**

| Professional nurse: Neutrality-Empathy Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|--|-------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C45  | Question 35 | 30 | 17.67                      | 18.644                         | 0.831                            | 0.775                            |
| C46  | Question 36 | 30 | 19.10                      | 18.783                         | 0.498                            | 0.864                            |
| C47  | Question 37 | 30 | 17.93                      | 19.720                         | 0.542                            | 0.842                            |
| C48  | Question 38 | 30 | 18.77                      | 17.495                         | 0.737                            | 0.789                            |
| C49  | Question 39 | 30 | 17.73                      | 18.754                         | 0.735                            | 0.793                            |
|  | Valid N     | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.11, the overall Cronbach's Alpha for the construct (C45-49) was 0.845. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that only item C46 (Question 36) of the statements delivered a score of 0.864 which is higher than the overall Cronbach's Alpha (0.845) and therefore removing this statement from the construct could be considered to improve the reliability of the construct. However, as it was the only statement that delivered a score higher than the overall score, it was not removed from the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.845).

**5.4.3.4.2** *Item-Total reliability results of Items C50-54: operational manager: Neutrality-Empathy Continuum*

Table 5.12 depicts the Item-Total reliability results of Items C50-54: operational manager: Neutrality-Empathy Continuum.

**TABLE 5.12: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C50–54: OPERATIONAL MANAGER: NEUTRALITY-EMPATHY CONTINUUM (N = 30)**

| Operational manager: Neutrality-Empathy Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|-------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C50   | Question 40 | 30 | 17.77                      | 21.220                         | 0.668                            | 0.848                            |
| C51   | Question 41 | 30 | 16.93                      | 25.099                         | 0.528                            | 0.877                            |
| C52   | Question 42 | 30 | 16.53                      | 21.706                         | 0.743                            | 0.828                            |
| C53   | Question 43 | 30 | 16.13                      | 21.982                         | 0.784                            | 0.820                            |
| C54   | Question 44 | 30 | 17.43                      | 20.185                         | 0.759                            | 0.824                            |
|   | Valid N     | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.12, the overall Cronbach's Alpha for the construct (C50-54) was 0.868.

From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that only item C51 (Question 41) of the statements delivered a score of 0.877 which is higher than the overall Cronbach's Alpha (0.868); removing this statement from the construct could be considered in order to improve the reliability of the construct. However, as it was the only statement that delivered a score higher than the overall score, it was not removed from the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.868).

#### **5.4.3.5 Reliability results for the construct: Superiority-Equality Continuum**

The construct reliability (internal consistency) for the construct: Superiority-Equality was tested with item analysis. These results are presented as Item-Total reliability results of Items C55-60: professional nurse: Superiority-Equality Continuum and Item-Total reliability results of Items C61-66: operational manager: Superiority-Equality Continuum.

##### **5.4.3.5.1 Item-Total reliability results of Items C55-60: professional nurse: Superiority-Equality Continuum**

Table 5.13 depicts the Item-Total reliability results of Items C55-60: professional nurse: Superiority-Equality Continuum.

**TABLE 5.13: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C55–60: PROFESSIONAL NURSE: SUPERIORITY-EQUALITY CONTINUUM (N = 30)**

| Professional nurse: Superiority-Equality Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Correlated Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|--|-------------|----|----------------------------|--------------------------------|-----------------------------------|----------------------------------|
| C55  | Question 45 | 30 | 21.60                      | 32.179                         | 0.531                             | 0.852                            |
| C56  | Question 46 | 30 | 23.00                      | 26.966                         | 0.705                             | 0.821                            |
| C57  | Question 47 | 30 | 21.47                      | 27.913                         | 0.897                             | 0.790                            |
| C58  | Question 48 | 30 | 23.17                      | 30.902                         | 0.491                             | 0.862                            |
| C59  | Question 49 | 30 | 22.00                      | 31.862                         | 0.515                             | 0.855                            |
| C60  | Question 50 | 30 | 21.77                      | 27.426                         | 0.785                             | 0.805                            |
|  | Valid N     | 30 |                            |                                |                                   |                                  |

Considering the output in Table 5.13, the overall Cronbach's Alpha for the construct (C55-60) was 0.856.

From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that only item C58 (Question 48) of the statements delivered a score of 0.862 which is higher than the overall Cronbach's Alpha (0.856); therefore removing this statement from the construct could be considered in order to improve the reliability of the construct. However, as it was the only statement that delivered a score higher than the overall score, it was not removed from the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.856).

#### 5.4.3.5.2 *Item-Total reliability results of Items C61-66: operational manager: Superiority-Equality Continuum*

Table 5.14 depicts the Item-Total reliability results of Items C61-66: operational manager: Superiority-Equality Continuum.

**TABLE 5.14: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C61–66: OPERATIONAL MANAGER: SUPERIORITY EQUALITY CONTINUUM (N = 30)**

| Operational manager: Superiority-Equality Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|-------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C61   | Question 51 | 30 | 22.80                      | 27.131                         | 0.708                            | 0.840                            |
| C62   | Question 52 | 30 | 22.57                      | 25.495                         | 0.768                            | 0.829                            |
| C63   | Question 53 | 30 | 21.13                      | 28.326                         | 0.758                            | 0.833                            |
| C64   | Question 54 | 30 | 21.17                      | 31.661                         | 0.538                            | 0.868                            |
| C65   | Question 55 | 30 | 22.13                      | 30.602                         | 0.548                            | 0.867                            |
| C66   | Question 56 | 30 | 21.53                      | 27.775                         | 0.704                            | 0.841                            |
| Valid N   |             | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.14, the overall Cronbach's Alpha for the construct (C61-66) was 0.870. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that none of the statements delivered a score higher than the overall Cronbach's Alpha (0.870) and therefore none of the statements needed to be removed to improve the reliability of the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.870).

### 5.4.3.6 Reliability results for the construct: Certainty-Provisionalism Continuum

The construct reliability (internal consistency) for the construct: Certainty-Provisionalism was tested with item analysis. These results are presented as Item-Total reliability results of Items C67-72: professional nurse: Certainty-Provisionalism Continuum and Item-Total reliability results of Items C73-78: operational manager: Certainty-Provisionalism Continuum.

#### 5.4.3.6.1 Item-Total reliability results for Items C67-72: professional nurse: Certainty-Provisionalism Continuum

Table 5.15 depicts the Item-Total reliability results of Items C67-72: professional nurse: Certainty-Provisionalism Continuum.

**TABLE 5.15: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C67–72: PROFESSIONAL NURSE: CERTAINTY-PROVISIONALISM CONTINUUM (N = 30)**

| Professional nurse: Certainty-Provisionalism Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|--|-------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C67  | Question 57 | 30 | 23.30                      | 27.597                         | 0.776                            | 0.889                            |
| C68  | Question 58 | 30 | 24.10                      | 23.403                         | 0.860                            | 0.878                            |
| C69  | Question 59 | 30 | 23.63                      | 28.171                         | 0.683                            | 0.902                            |
| C70  | Question 60 | 30 | 22.43                      | 31.013                         | 0.703                            | 0.902                            |
| C71  | Question 61 | 30 | 22.67                      | 27.540                         | 0.767                            | 0.890                            |
| C72  | Question 62 | 30 | 22.70                      | 28.079                         | 0.751                            | 0.892                            |
|  | Valid N     | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.15, the overall Cronbach's Alpha for the construct (C67-72) was 0.909. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that none of the statements delivered a score higher than the overall Cronbach's Alpha (0.909) and therefore none of the statements needed to be removed to improve the reliability of the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.909).

#### 5.4.3.6.2 Item-Total reliability results of Items C73-C78: operational manager: Certainty-Provisionalism Continuum

Table 5.16 depicts the Item-Total reliability results of Items C73-78: operational manager: Certainty-Provisionalism Continuum.

**TABLE 5.16: ITEM-TOTAL RELIABILITY RESULTS FOR ITEMS C73–78: OPERATIONAL MANAGER: CERTAINTY-PROVISIONALISM CONTINUUM (N = 30)**

| Operational manager: Certainty-Provisionalism Continuum |             | N  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|-------------|----|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| C73   | Question 63 | 30 | 20.87                      | 33.016                         | 0.682                            | 0.874                            |
| C74   | Question 64 | 30 | 19.47                      | 33.223                         | 0.759                            | 0.862                            |
| C75   | Question 65 | 30 | 19.87                      | 34.671                         | 0.778                            | 0.862                            |
| C76   | Question 66 | 30 | 20.93                      | 33.651                         | 0.603                            | 0.888                            |
| C77   | Question 67 | 30 | 20.97                      | 33.689                         | 0.642                            | 0.881                            |
| C78   | Question 68 | 30 | 19.40                      | 32.110                         | 0.819                            | 0.852                            |
| Valid N   |             | 30 |                            |                                |                                  |                                  |

Considering the output in Table 5.16, the overall Cronbach's Alpha for the construct (C73-78) was 0.889. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

From the *Cronbach's Alpha if Item Deleted* results it can be seen that none of the statements delivered a score higher than the overall Cronbach's Alpha (0.889) and therefore none of the statements needed to be removed to improve the reliability of the construct. The conclusion drawn from the results above is that the construct is reliable (with a Cronbach's Alpha of 0.889).

#### **5.4.4 Scale statistics analysis of the constructs (Gibb's conceptual continuums)**

A scale statistics analysis was performed to test the mean, scores, variances and the standard deviations of the constructs (Gibb's conceptual continuums). To calculate the mean scores for each construct (Gibb's conceptual continuums) a maximum score of 30 will indicate that the respondent (at least one of the respondents) has selected all of the supportive responses.

Contrariwise, a score of 0 will indicate that the respondent (at least one of the respondents) has selected all of the defensive responses. In this case an average score of less than 15 indicates a collective tendency towards a defensive communication behaviour orientation and an average score of above 15 will indicate a collective tendency towards a supportive communication behaviour orientation. The results for the scale analysis are depicted in Table 5.17.

**TABLE 5.17: SCALE STATISTICAL RELIABILITY OF ALL THE CONSTRUCTS (GIBB'S CONCEPTUAL CONTINUUMS) ACCORDING TO MEAN SCORES, VARIANCES AND STANDARD DEVIATIONS**

| CONSTRUCTS: GIBB'S CONCEPTUAL CONTINUUMS  | Codes  | Question numbers | Number of items | Mean  | Variance | Std. Deviation |
|---|--------|------------------|-----------------|-------|----------|----------------|
| PN: Evaluation-Description Continuum      | C11-15 | 1 – 5            | 5               | 22.70 | 34.424   | 5.867          |
| PN: Control-Problem Orientation Continuum | C21-26 | 11 – 16          | 6               | 29.17 | 28.695   | 5.357          |
| PN: Strategy-Spontaneity Continuum        | C33-38 | 23 – 28          | 6               | 26.60 | 42.869   | 6.547          |
| PN: Neutrality-Empathy Continuum          | C45-49 | 35 – 39          | 5               | 22.80 | 28.097   | 5.301          |
| PN: Superiority-Equality Continuum        | C55-60 | 45 – 50          | 6               | 26.60 | 41.352   | 6.431          |
| PN: Certainty-Provisionalism Continuum    | C67-72 | 57 – 62          | 6               | 27.77 | 39.082   | 6.252          |
| OM: Evaluation-Description Continuum      | C16-20 | 6 – 10           | 5               | 22.33 | 22.023   | 4.693          |
| OM: Control-Problem Orientation Continuum | C27-32 | 17 – 22          | 6               | 26.43 | 33.771   | 5.811          |
| OM: Strategy-Spontaneity Continuum        | C39-44 | 29 – 34          | 6               | 24.47 | 42.189   | 6.495          |
| OM: Neutrality-Empathy Continuum          | C50-54 | 40 – 44          | 5               | 21.20 | 33.338   | 5.774          |
| OM: Superiority-Equality Continuum        | C61-66 | 51 – 56          | 6               | 26.27 | 39.995   | 6.324          |
| OM: Certainty-Provisionalism Continuum    | C73-78 | 63 – 68          | 6               | 24.30 | 47.045   | 6.859          |

**p < 0.05 level**

**PN = Professional nurse**

**OM = Operational Manager**

From Table 5.17, it can be deduced that with regard to all the constructs (Gibb's conceptual continuums) collectively, the respondents own communication behaviour orientation ("professional nurse") as well as the respondents' perception of operational manager communication behaviour orientation ("operational manager") reflects a supportive communication behaviour orientation overall.

#### **5.4.5 Results of the kappa (interrater agreement) tests**

Kappa tests were performed on the data obtained from the pre-testing of the measuring instrument. Normally, a Cohen's kappa test is used to measure interrater agreement between two raters who each classify items into mutually exclusive categories (Cohen 1960:37). When there are more than two raters, a similar measure of agreement can be achieved by using the Fleiss' kappa. The Fleiss' kappa ( $\kappa$ ) is a statistic which measures interrater agreement for quantitative (categorical) items (Fleiss 1971:378). Due to the Fleiss' kappa also taking into account the agreement that occurs by chance, it is viewed as a more rigorous measure than performing a mere percentage agreement calculation. The researcher applied two sets of kappa testing to the data. For the purposes of performing the first kappa test, the Delphi panel members acted as raters to evaluate the respondents (that partook in the pre-test study) as to whether they (the respondents) had a supportive (S) or defensive (D) orientation, according to the responses they provided on the questionnaire (see Table 5.18).

**TABLE 5.18: RATER (DELPHI PANEL MEMBER) FEEDBACK ON RESPONDENTS\***

| DPMs          | DPM 1 | DPM 2 | DPM 3 | DPM 4 | DPM 5 | DPM 6 | DPM 7 | DPM 8 | DPM 9 | DPM 10 | DPM 11 | DPM 12 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| Expertise     | BSE   | BSE   | BSE   | BSE   | NSE   | NSE   | NSE   | NSE   | CSE   | CSE    | CSE    | CSE    |
| Respondent 1  | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 2  | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 3  | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 4  | D     | D     | D     | D     | D     | D     | S     | D     | D     | S      | D      | D      |
| Respondent 5  | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 6  | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 7  | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 8  | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 9  | D     | D     | D     | D     | D     | D     | S     | D     | S     | D      | S      | D      |
| Respondent 10 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 11 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 12 | D     | D     | D     | D     | D     | D     | S     | S     | D     | D      | D      | D      |
| Respondent 13 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 14 | D     | D     | D     | D     | D     | D     | S     | D     | D     | D      | S      | S      |
| Respondent 15 | D     | D     | D     | D     | D     | D     | S     | S     | D     | D      | D      | D      |
| Respondent 16 | D     | D     | D     | D     | S     | S     | S     | S     | S     | S      | S      | D      |
| Respondent 17 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 18 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 19 | S     | D     | S     | D     | D     | S     | S     | D     | D     | S      | S      | D      |
| Respondent 20 | D     | D     | D     | D     | D     | D     | S     | S     | D     | D      | D      | D      |
| Respondent 21 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 22 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 23 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 24 | D     | D     | D     | D     | S     | D     | S     | D     | D     | D      | S      | S      |
| Respondent 25 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 26 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 27 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 28 | D     | D     | D     | D     | S     | D     | S     | D     | S     | D      | D      | S      |
| Respondent 29 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 30 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |

BSE = Behavioural Sciences Expert      CSE =Communication Sciences Expert  
 DPM = Delphi Panel Member              NSE = Nursing Sciences Expert

The researcher approached the first kappa testing systematically, by

- requesting all twelve of the Delphi panel members to rate the responses of the thirty respondents and to send the feedback to the researcher
- compiling a table, displaying the feedback from all the Delphi panel members (see Table 5.19), to simplify the analysis of the data
- randomly selecting the feedback of two of the raters (Delphi panel members) to test the interrater agreement. All twelve of the Delphi panel members, consisting of four Behavioural Science Experts, four Nursing Science Experts and four Communication Science Experts, had an equal chance of being selected and therefore the researcher selected two Delphi panel members at random. The two raters (Delphi panel members) selected for the Fleiss' kappa test were member 3, a Behavioural Science Expert and member 7, a Nursing Science Expert.

- compiling the feedback of only the two selected raters (Delphi panel members) into a table (see Table 5.19) to simplify the comparison of the data.

**TABLE 5.19: RATINGS OF TWO RANDOMLY SELECTED DELPHI PANEL MEMBERS ON THE RESPONDENTS**

|              | Respondent 1 | Respondent 2 | Respondent 3 | Respondent 4 | Respondent 5 | Respondent 6 | Respondent 7 | Respondent 8 | Respondent 9 | Respondent 10 | Respondent 11 | Respondent 12 | Respondent 13 | Respondent 14 | Respondent 15 | Respondent 16 | Respondent 17 | Respondent 18 | Respondent 19 | Respondent 20 | Respondent 21 | Respondent 22 | Respondent 23 | Respondent 24 | Respondent 25 | Respondent 26 | Respondent 27 | Respondent 28 | Respondent 29 | Respondent 30 | n = 30 |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------|
| Defensive    | 0            | 0            | 0            | 1            | 0            | 2            | 2            | 0            | 1            | 2             | 0             | 1             | 2             | 1             | 1             | 1             | 0             | 2             | 0             | 1             | 2             | 0             | 2             | 1             | 0             | 2             | 0             | 1             | 0             | 0             |        |
| Supportive   | 2            | 2            | 2            | 1            | 2            | 0            | 0            | 2            | 1            | 0             | 2             | 1             | 0             | 1             | 1             | 1             | 2             | 0             | 2             | 1             | 0             | 2             | 0             | 1             | 2             | 0             | 2             | 1             | 2             | 2             |        |
| Agreement    | √            | √            | √            |              | √            | √            | √            | √            |              | √             | √             |               | √             |               |               |               | √             | √             | √             |               | √             | √             | √             |               | √             | √             | √             |               | √             | √             | 70%    |
| Disagreement |              |              |              | √            |              |              |              |              | √            |               |               | √             |               | √             | √             | √             |               |               |               | √             |               |               |               | √             |               |               |               | √             |               |               | 30%    |

Table 5.18 indicated the responses of all twelve Delphi panel members to the responses of the thirty respondents. Eleven of the Delphi panel members rated the respondents 13 to 18 out of thirty as having a defensive communication climate focus. Only one Delphi panel member, a Nurse Educator, rated the respondents as having an 8 out of thirty defensive communication climate focus. This is in line with the interrater agreement results displayed in Table 5.20, where this Delphi panel member (DPM 7) agreement was considered as fair to poor.

The simplified results in Table 5.19 indicate that there was a 70% Agreement and a 30% Disagreement between Delphi panel member 3 and 7 on the responses of the respondents.

The researcher requested the statistician to perform a kappa interrater agreement test on the compiled data, as depicted in Table 5.19. These results are indicated in Table 5.20.



**TABLE 5.20: RESULTS OF THE INTERRATER AGREEMENT TESTS ON THE RESPONDENTS\***

| Rater  | Agreement with | Test          | Number of Subjects | Number of raters | % agreement | kappa (k) | z     | p-value  |
|--------|----------------|---------------|--------------------|------------------|-------------|-----------|-------|----------|
| DPM 1  | DPM 2          | Cohen's kappa | 30                 | 2                | 96.7        | 0.932     | 5.11  | 3.15e-07 |
|        | DPM 3          | Cohen's kappa | 30                 | 2                | 100         | 1         | 5.48  | 4.32e-08 |
|        | DPM 4          | Cohen's kappa | 30                 | 2                | 96.7        | 0.932     | 5.11  | 3.15e-07 |
|        | DPM 5          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|        | DPM 6          | Cohen's kappa | 30                 | 2                | 96.7        | 0.933     | 5.12  | 3.05e-07 |
|        | DPM 7          | Cohen's kappa | 30                 | 2                | 70          | 0.435     | 2.89  | 0.00387  |
|        | DPM 8          | Cohen's kappa | 30                 | 2                | 83.3        | 0.67      | 3.74  | 0.000183 |
|        | DPM 9          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|        | DPM 10         | Cohen's kappa | 30                 | 2                | 93.3        | 0.867     | 4.79  | 1.67e-06 |
|        | DPM 11         | Cohen's kappa | 30                 | 2                | 86.7        | 0.738     | 4.19  | 2.81e-05 |
|        | DPM 12         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|        | DPM 2          | DPM 1         | Cohen's kappa      | 30               | 2           | 96.7      | 0.932 | 5.11     |
| DPM 3  |                | Cohen's kappa | 30                 | 2                | 96.7        | 0.932     | 5.11  | 3.15e-07 |
| DPM 4  |                | Cohen's kappa | 30                 | 2                | 100         | 1         | 5.48  | 4.32e-08 |
| DPM 5  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 6  |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.865     | 4.78  | 1.74e-06 |
| DPM 7  |                | Cohen's kappa | 30                 | 2                | 66.7        | 0.39      | 2.7   | 0.007    |
| DPM 8  |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.737     | 4.18  | 2.87e-05 |
| DPM 9  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 10 |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 11 |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.675     | 3.91  | 9.2e-05  |
| DPM 12 |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 3  |                | DPM 1         | Cohen's kappa      | 30               | 2           | 100       | 1     | 5.48     |
|        | DPM 2          | Cohen's kappa | 30                 | 2                | 96.7        | 0.932     | 5.11  | 3.15e-07 |
|        | DPM 4          | Cohen's kappa | 30                 | 2                | 96.7        | 0.932     | 5.11  | 3.15e-07 |
|        | DPM 5          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|        | DPM 6          | Cohen's kappa | 30                 | 2                | 96.7        | 0.933     | 5.12  | 3.05e-07 |
|        | DPM 7          | Cohen's kappa | 30                 | 2                | 70          | 0.435     | 2.89  | 0.00387  |
|        | DPM 8          | Cohen's kappa | 30                 | 2                | 83.3        | 0.67      | 3.74  | 0.000183 |
|        | DPM 9          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|        | DPM 10         | Cohen's kappa | 30                 | 2                | 93.3        | 0.867     | 4.79  | 1.67e-06 |
|        | DPM 11         | Cohen's kappa | 30                 | 2                | 86.7        | 0.738     | 4.19  | 2.81e-05 |
|        | DPM 12         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|        | DPM 4          | DPM 1         | Cohen's kappa      | 30               | 2           | 96.7      | 0.932 | 5.11     |
| DPM 2  |                | Cohen's kappa | 30                 | 2                | 100         | 1         | 5.48  | 4.32e-08 |
| DPM 3  |                | Cohen's kappa | 30                 | 2                | 96.7        | 0.932     | 5.11  | 3.15e-07 |
| DPM 5  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 6  |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.865     | 4.78  | 1.74e-06 |
| DPM 7  |                | Cohen's kappa | 30                 | 2                | 66.7        | 0.39      | 2.7   | 0.007    |
| DPM 8  |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.737     | 4.18  | 2.87e-05 |
| DPM 9  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 10 |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 11 |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.675     | 3.91  | 9.2e-05  |
| DPM 12 |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 5  |                | DPM 1         | Cohen's kappa      | 30               | 2           | 86.7      | 0.733 | 4.05     |
|        | DPM 2          | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
|        | DPM 3          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|        | DPM 4          | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
|        | DPM 6          | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.39  | 1.13e-05 |
|        | DPM 7          | Cohen's kappa | 30                 | 2                | 76.7        | 0.533     | 3.3   | 0.000957 |
|        | DPM 8          | Cohen's kappa | 30                 | 2                | 83.3        | 0.667     | 3.66  | 0.000253 |
|        | DPM 9          | Cohen's kappa | 30                 | 2                | 93.3        | 0.867     | 4.75  | 2.07e-06 |
|        | DPM 10         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.02  | 5.9e-05  |
|        | DPM 11         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|        | DPM 12         | Cohen's kappa | 30                 | 2                | 93.3        | 0.867     | 4.75  | 2.07e-06 |
|        | DPM 6          | DPM 1         | Cohen's kappa      | 30               | 2           | 96.7      | 0.933 | 5.12     |
| DPM 2  |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.865     | 4.78  | 1.74e-06 |
| DPM 3  |                | Cohen's kappa | 30                 | 2                | 96.7        | 0.933     | 5.12  | 3.05e-07 |
| DPM 4  |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.865     | 4.78  | 1.74e-06 |
| DPM 5  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.39  | 1.13e-05 |
| DPM 7  |                | Cohen's kappa | 30                 | 2                | 73.3        | 0.483     | 3.09  | 0.002    |
| DPM 8  |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.735     | 4.06  | 4.93e-05 |
| DPM 9  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.39  | 1.13e-05 |
| DPM 10 |                | Cohen's kappa | 30                 | 2                | 96.7        | 0.932     | 5.12  | 3.05e-07 |
| DPM 11 |                | Cohen's kappa | 30                 | 2                | 90          | 0.802     | 4.48  | 7.45e-06 |
| DPM 12 |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667     | 3.66  | 0.000253 |

e = to the power indicated next to each p-value

DPM = Delphi Panel Member

TABLE 5.20: Continued\*

| Rater       | Agreement with | Test          | Number of Subjects | Number of raters | % agreement | kappa (k) | z     | p-value  |
|-------------|----------------|---------------|--------------------|------------------|-------------|-----------|-------|----------|
| DPM 7       | DPM 1          | Cohen's kappa | 30                 | 2                | 70          | 0.435     | 2.89  | 0.00387  |
|             | DPM 2          | Cohen's kappa | 30                 | 2                | 66.7        | 0.39      | 2.7   | 0.007    |
|             | DPM 3          | Cohen's kappa | 30                 | 2                | 70          | 0.435     | 2.89  | 0.00387  |
|             | DPM 4          | Cohen's kappa | 30                 | 2                | 66.7        | 0.39      | 2.7   | 0.007    |
|             | DPM 5          | Cohen's kappa | 30                 | 2                | 76.7        | 0.533     | 3.3   | 0.000957 |
|             | DPM 6          | Cohen's kappa | 30                 | 2                | 73.3        | 0.483     | 3.09  | 0.002    |
|             | DPM 8          | Cohen's kappa | 30                 | 2                | 80          | 0.587     | 3.53  | 0.000414 |
|             | DPM 9          | Cohen's kappa | 30                 | 2                | 76.7        | 0.533     | 3.3   | 0.000957 |
|             | DPM 10         | Cohen's kappa | 30                 | 2                | 76.7        | 0.533     | 3.3   | 0.000957 |
|             | DPM 11         | Cohen's kappa | 30                 | 2                | 83.3        | 0.645     | 3.78  | 0.000159 |
|             | DPM 12         | Cohen's kappa | 30                 | 2                | 76.7        | 0.533     | 3.3   | 0.000957 |
|             | DPM 8          | DPM 1         | Cohen's kappa      | 30               | 2           | 83.3      | 0.67  | 3.74     |
| DPM 2       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.737     | 4.18  | 2.87e-05 |
| DPM 3       |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.67      | 3.74  | 0.000183 |
| DPM 4       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.737     | 4.18  | 2.87e-05 |
| DPM 5       |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667     | 3.66  | 0.000253 |
| DPM 6       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.735     | 4.06  | 5.93e-05 |
| DPM 7       |                | Cohen's kappa | 30                 | 2                | 80          | 0.587     | 3.53  | 0.000414 |
| DPM 9       |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667     | 3.66  | 0.000253 |
| DPM 10      |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667     | 3.66  | 0.000253 |
| DPM 11      |                | Cohen's kappa | 30                 | 2                | 76.7        | 0.529     | 2.9   | 0.00367  |
| DPM 12      |                | Cohen's kappa | 30                 | 2                | 76.7        | 0.533     | 2.93  | 0.00341  |
| DPM 9       |                | DPM 1         | Cohen's kappa      | 30               | 2           | 86.7      | 0.733 | 4.05     |
|             | DPM 2          | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
|             | DPM 3          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|             | DPM 4          | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
|             | DPM 5          | Cohen's kappa | 30                 | 2                | 93.3        | 0.867     | 4.75  | 2.07e-06 |
|             | DPM 6          | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.39  | 1.13e-05 |
|             | DPM 7          | Cohen's kappa | 30                 | 2                | 76.7        | 0.533     | 3.3   | 0.000957 |
|             | DPM 8          | Cohen's kappa | 30                 | 2                | 83.3        | 0.667     | 3.66  | 0.000253 |
|             | DPM 10         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.02  | 5.9e-05  |
|             | DPM 11         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|             | DPM 12         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|             | DPM 10         | DPM 1         | Cohen's kappa      | 30               | 2           | 93.3      | 0.867 | 4.79     |
| DPM 2       |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 3       |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.867     | 4.79  | 1.67e-06 |
| DPM 4       |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 5       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.02  | 5.9e-05  |
| DPM 6       |                | Cohen's kappa | 30                 | 2                | 96.7        | 0.933     | 5.12  | 3e-07    |
| DPM 7       |                | Cohen's kappa | 30                 | 2                | 76.7        | 0.533     | 3.3   | 0.000957 |
| DPM 8       |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667     | 3.66  | 0.000253 |
| DPM 9       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.02  | 5.9e-05  |
| DPM 11      |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
| DPM 12      |                | Cohen's kappa | 30                 | 2                | 80          | 0.6       | 3.29  | 0.00102  |
| DPM 11      |                | DPM 1         | Cohen's kappa      | 30               | 2           | 86.7      | 0.738 | 4.19     |
|             | DPM 2          | Cohen's kappa | 30                 | 2                | 83.3        | 0.675     | 3.91  | 9.2e-05  |
|             | DPM 3          | Cohen's kappa | 30                 | 2                | 86.7        | 0.738     | 4.19  | 5.81e-05 |
|             | DPM 4          | Cohen's kappa | 30                 | 2                | 83.3        | 0.675     | 3.91  | 9.2e-05  |
|             | DPM 5          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|             | DPM 6          | Cohen's kappa | 30                 | 2                | 90          | 0.802     | 4.48  | 7.45e-06 |
|             | DPM 7          | Cohen's kappa | 30                 | 2                | 83.3        | 0.645     | 3.78  | 0.000159 |
|             | DPM 8          | Cohen's kappa | 30                 | 2                | 76.7        | 0.529     | 2.9   | 0.00367  |
|             | DPM 9          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|             | DPM 10         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|             | DPM 12         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
|             | DPM 12         | DPM 1         | Cohen's kappa      | 30               | 2           | 86.7      | 0.733 | 4.05     |
| DPM 2       |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 3       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
| DPM 4       |                | Cohen's kappa | 30                 | 2                | 90          | 0.8       | 4.47  | 7.74e-06 |
| DPM 5       |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.867     | 4.75  | 2.07e-06 |
| DPM 6       |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667     | 3.66  | 0.000253 |
| DPM 7       |                | Cohen's kappa | 30                 | 2                | 76.6        | 0.533     | 3.3   | 0.000957 |
| DPM 8       |                | Cohen's kappa | 30                 | 2                | 76.6        | 0.533     | 2.93  | 0.00341  |
| DPM 9       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.02  | 5.9e-05  |
| DPM 10      |                | Cohen's kappa | 30                 | 2                | 80          | 0.6       | 3.29  | 0.00102  |
| DPM 11      |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733     | 4.05  | 5.06e-05 |
| All 12 DPMs |                | Freiss' kappa | 30                 | 12               | -           | 0.728     | 32.4  | 0        |

e = to the power indicated next to each p-value

DPM = Delphi Panel Member

Fleiss (1981) characterises kappa scores over 0.75 as excellent, 0.40 to 0.75 as fair to good, and kappa scores below 0.40 as poor. If these scoring characteristics are to be applied to the results as depicted in Table 5.20, it can be assumed that there was, regarding the scores of Delphi panel members 4, 5, 6, 9, 10 and 12, excellent agreement; regarding the scores of Delphi panel members 8 and 11 there was fair to good agreement; the score of Delphi panel member 7's agreement can be considered as fair to poor. The results of the kappa interrater agreement test (depicted in Table 5.20) indicated that Delphi panel member 4 was in complete agreement with Delphi panel member 3, because when raters are in complete (100%) agreement then  $\kappa = 1$ . In the case of the score of all 12 Delphi panel members (using the Fleiss' kappa test), it can be assumed that with a score of 0.728 the interrater agreement is between fair and good.

For the second kappa test the researcher decided to perform a kappa interrater agreement test on the actual draft questionnaire, (see Table 5.21). The researcher requested the statistician to perform a kappa interrater agreement test on the compiled data. This was done to evaluate the interrater agreement of the raters (Delphi panel members) on the content of the measuring instrument. Once again the researcher approached the Delphi panel members to conduct a rating, but this time on the 70 questions (items) in the draft measuring instrument. They were asked to rate the questions to assess the correctness of the questions on a scale of Correct (C) or Incorrect (I), with regard to their suitability, accuracy, clarity and relevance within the constructs in the instrument (questionnaire). The results of this interrater test, in the form of the rater (Delphi panel member) feedback on the draft measuring instrument are depicted in Table 5.21, and indicate that 7 of the Delphi panel members found all the items to be Correct (C) on the questionnaire. Five of the Delphi panel members found that some of the questions were Incorrect (I) and had to be adapted.

Furthermore, the researcher compiled a table to consolidate the rater (Delphi panel member) feedback on the measuring instrument (see Table 5.22). This consolidation serves to explain the actual reasons why the Delphi panel members would indicate the item on the questionnaire as incorrect (I) in Table 5.21. Some of the Delphi panel members highlighted Clarity, Accuracy and Suitability issues with some of the items. These issues were corrected in the final draft of the SDS questionnaire.

TABLE 5.21: RATER FEEDBACK ON DRAFT MEASURING INSTRUMENT\* DPM=Delphi Panel Member

| DPMs        | DPM 1 | DPM 2 | DPM 3 | DPM 4 | DPM 5 | DPM 6 | DPM 7 | DPM 8 | DPM 9 | DPM 10 | DPM 11 | DPM 12 |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| Question 1  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 2  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 3  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 4  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 5  | C     | C     | C     | C     | C     | I     | C     | C     | C     | C      | C      | C      |
| Question 6  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 7  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 8  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 9  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 10 | C     | C     | C     | C     | C     | I     | C     | C     | C     | C      | C      | C      |
| Question 11 | C     | C     | C     | C     | C     | I     | C     | C     | I     | C      | C      | C      |
| Question 12 | C     | C     | C     | C     | C     | C     | C     | I     | C     | C      | C      | C      |
| Question 13 | C     | C     | C     | C     | C     | I     | C     | C     | I     | C      | C      | C      |
| Question 14 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 15 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 16 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 17 | C     | C     | C     | C     | C     | I     | C     | C     | I     | C      | C      | C      |
| Question 18 | C     | C     | C     | C     | C     | C     | C     | I     | C     | C      | C      | C      |
| Question 19 | C     | C     | C     | C     | C     | I     | C     | C     | I     | C      | C      | C      |
| Question 20 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 21 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 22 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 23 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 24 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 25 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 26 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 27 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 28 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 29 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 30 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 31 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 32 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 33 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 34 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 35 | C     | C     | C     | C     | C     | I     | C     | C     | C     | I      | C      | C      |
| Question 36 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 37 | C     | I     | C     | C     | C     | I     | C     | C     | C     | C      | C      | C      |
| Question 38 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 39 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 40 | C     | C     | C     | C     | C     | I     | C     | C     | C     | I      | C      | C      |
| Question 41 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 42 | C     | I     | C     | C     | C     | I     | C     | C     | C     | C      | C      | C      |
| Question 43 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 44 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 45 | C     | C     | C     | C     | C     | I     | C     | C     | C     | I      | C      | C      |
| Question 46 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 47 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 48 | C     | C     | C     | C     | C     | C     | C     | I     | C     | I      | C      | C      |
| Question 49 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 50 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 51 | C     | C     | C     | C     | C     | I     | C     | C     | C     | I      | C      | C      |
| Question 52 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 53 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 54 | C     | C     | C     | C     | C     | C     | C     | I     | C     | I      | C      | C      |
| Question 55 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 56 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 57 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 58 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 59 | C     | C     | C     | C     | C     | I     | I     | C     | C     | C      | C      | C      |
| Question 60 | C     | C     | C     | C     | C     | I     | I     | C     | C     | I      | C      | C      |
| Question 61 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 62 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 63 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 64 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 65 | C     | C     | C     | C     | C     | I     | I     | C     | C     | C      | C      | C      |
| Question 66 | C     | C     | C     | C     | C     | I     | I     | C     | C     | I      | C      | C      |
| Question 67 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 68 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 69 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 70 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |

**TABLE 5.22: CONSOLIDATION OF RATER FEEDBACK\***

| Rating      | Correct | Incorrect | DPM - Expertise | Reason for incorrect rating/ Problem with item |
|-------------|---------|-----------|-----------------|--|
| Question 1  | 12      | 0         | -               | -  |
| Question 2  | 12      | 0         | -               | -  |
| Question 3  | 12      | 0         | -               | -  |
| Question 4  | 12      | 0         | -               | -  |
| Question 5  | 11      | 1         | NSE             | Clarity  |
| Question 6  | 12      | 0         | -               | -  |
| Question 7  | 12      | 0         | -               | -  |
| Question 8  | 12      | 0         | -               | -  |
| Question 9  | 12      | 0         | -               | -  |
| Question 10 | 11      | 1         | NSE             | Clarity  |
| Question 11 | 10      | 2         | NSE/ CSE        | Accuracy                                       |
| Question 12 | 11      | 1         | NSE             | Suitability                                    |
| Question 13 | 10      | 2         | NSE/BSE         | Clarity  |
| Question 14 | 12      | 0         | -               | -  |
| Question 15 | 12      | 0         | -               | -  |
| Question 16 | 12      | 0         | -               | -  |
| Question 17 | 10      | 2         | NSE/ CSE        | Accuracy                                       |
| Question 18 | 11      | 1         | NSE             | Suitability                                    |
| Question 19 | 10      | 2         | NSE/BSE         | Clarity  |
| Question 20 | 12      | 0         | -               | -  |
| Question 21 | 12      | 0         | -               | -  |
| Question 22 | 12      | 0         | -               | -  |
| Question 23 | 12      | 0         | -               | -  |
| Question 24 | 10      | 2         | NSE/ NSE        | Accuracy                                       |
| Question 25 | 10      | 2         | NSE/ NSE        | Accuracy                                       |
| Question 26 | 12      | 0         | -               | -  |
| Question 27 | 12      | 0         | -               | -  |
| Question 28 | 10      | 2         | NSE/ NSE        | Clarity  |
| Question 29 | 12      | 0         | -               | -  |
| Question 30 | 10      | 2         | NSE/ NSE        | Accuracy                                       |
| Question 31 | 10      | 2         | NSE/ NSE        | Accuracy                                       |
| Question 32 | 12      | 0         | -               | -  |
| Question 33 | 12      | 0         | -               | -  |
| Question 34 | 10      | 2         | NSE/ NSE        | Clarity  |
| Question 35 | 10      | 2         | CSE/ NSE        | Clarity  |
| Question 36 | 11      | 1         | BSE             | Suitability                                    |
| Question 37 | 10      | 2         | BSE/NSE         | Clarity  |
| Question 38 | 12      | 0         | -               | -  |
| Question 39 | 12      | 0         | -               | -  |
| Question 40 | 10      | 2         | CSE/ NSE        | Clarity  |
| Question 41 | 11      | 1         | BSE             | Suitability                                    |
| Question 42 | 10      | 2         | BSE/NSE         | Clarity  |
| Question 43 | 12      | 0         | -               | -  |
| Question 44 | 12      | 0         | -               | -  |
| Question 45 | 12      | 0         | -               | -  |
| Question 46 | 11      | 1         | BSE             | Relevancy                                      |
| Question 47 | 12      | 0         | -               | -  |
| Question 48 | 10      | 2         | CSE/ NSE        | Clarity  |
| Question 49 | 12      | 0         | -               | -  |
| Question 50 | 12      | 0         | -               | -  |
| Question 51 | 12      | 0         | -               | -  |
| Question 52 | 11      | 1         | BSE             | Relevancy                                      |
| Question 53 | 12      | 0         | -               | -  |
| Question 54 | 10      | 2         | CSE/ NSE        | Clarity  |
| Question 55 | 12      | 0         | -               | -  |
| Question 56 | 12      | 0         | -               | -  |
| Question 57 | 11      | 1         | BSE             | Accuracy                                       |
| Question 58 | 12      | 0         | -               | -  |
| Question 59 | 10      | 2         | NSE/ NSE        | Clarity  |
| Question 60 | 9       | 3         | CSE/ NSE/ NSE   | Clarity  |
| Question 61 | 12      | 0         | -               | -  |
| Question 62 | 11      | 1         | BSE             | Relevancy                                      |
| Question 63 | 11      | 1         | BSE             | Accuracy                                       |
| Question 64 | 12      | 0         | -               | -  |
| Question 65 | 10      | 2         | NSE/ NSE        | Clarity  |
| Question 66 | 9       | 3         | CSE/ NSE/ NSE   | Clarity  |
| Question 67 | 12      | 0         | -               | -  |
| Question 68 | 11      | 1         | BSE             | Relevancy                                      |
| Question 69 | 12      | 0         | -               | -  |
| Question 70 | 12      | 0         | -               | -  |

| KEY                                 |
|-------------------------------------|
| DPM = Delphi Panel Member           |
| BSE = Behavioural Sciences Expert   |
| CSE = Communication Sciences Expert |
| NSE = Nursing Sciences Expert       |

Following the feedback from the Delphi panel members, the researcher requested the statistician to perform Cohen's kappa and Fleiss kappa tests on the feedback from the Delphi panel members. The same procedure was followed as with the first kappa-testing. The results of these kappa-tests; results of the interrater agreement tests on the draft measuring instrument, are indicated in Table 5.23 and the descriptive results of interrater agreement tests on the measuring instrument are depicted in Table 5.24.

The results of Table 5.23 indicates that Delphi panel members 2, 5, 6, 7, 8, 9 and 10 delivered some negative kappa scores, indicating that these Delphi panel members were not in complete agreement with the other Delphi panel members with regard to some of the items. Delphi panel members 6 and 10 provided most of the "incorrect" responses to the correctness assessment of the draft measuring instrument. Delphi panel members 1, 3, 4, 11 and 12 provided 100% "correct" responses to all the assessments of the draft measuring instrument, therefore they all delivered a 0 and/or NaN result. The 0 and/or NaN result indicates that the rater has agreed with all of the items, rendering it impossible to compute a kappa score (Zhao 2013:55).

**TABLE 5.23: RESULTS OF THE interrater AGREEMENT TESTS ON THE DRAFT MEASURING INSTRUMENT\***

| Rater  | Agreement with | Test          | Number of Subjects | Number of raters | % agreement | kappa (k) | z      | p-value  |
|--------|----------------|---------------|--------------------|------------------|-------------|-----------|--------|----------|
| DPM 1  | DPM 2          | Cohen's kappa | 70                 | 2                | 85.7        | 0         | 0      | 1        |
|        | DPM 3          | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN      |
|        | DPM 4          | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN      |
|        | DPM 5          | Cohen's kappa | 70                 | 2                | 91.4        | 0         | NaN    | NaN      |
|        | DPM 6          | Cohen's kappa | 70                 | 2                | 68.6        | 0         | NaN    | NaN      |
|        | DPM 7          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN      |
|        | DPM 8          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN      |
|        | DPM 9          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN      |
|        | DPM 10         | Cohen's kappa | 70                 | 2                | 88.6        | 0         | NaN    | NaN      |
|        | DPM 11         | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN      |
|        | DPM 12         | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN      |
|        | DPM 2          | DPM 1         | Cohen's kappa      | 70               | 2           | 85.7      | 0      | 0        |
| DPM 3  |                | Cohen's kappa | 70                 | 2                | 85.7        | 0         | 0      | 1        |
| DPM 4  |                | Cohen's kappa | 70                 | 2                | 85.7        | 0         | 0      | 1        |
| DPM 5  |                | Cohen's kappa | 70                 | 2                | 77.1        | 0         | 0      | 1        |
| DPM 6  |                | Cohen's kappa | 70                 | 2                | 60          | -0.12     | -1.05  | 0.296    |
| DPM 7  |                | Cohen's kappa | 70                 | 2                | 80          | -0.0889   | -0.841 | 0.4      |
| DPM 8  |                | Cohen's kappa | 70                 | 2                | 80          | -0.0889   | -0.841 | 0.4      |
| DPM 9  |                | Cohen's kappa | 70                 | 2                | 80          | -0.0889   | -0.841 | 0.4      |
| DPM 10 |                | Cohen's kappa | 70                 | 2                | 74.3        | -0.145    | -0.123 | 0.22     |
| DPM 11 |                | Cohen's kappa | 70                 | 2                | 85.7        | 0         | 0      | 1        |
| DPM 12 |                | Cohen's kappa | 70                 | 2                | 85.7        | 0         | 0      | 1        |
| DPM 3  |                | DPM 1         | Cohen's kappa      | 70               | 2           | 100       | NaN    | NaN      |
|        | DPM 2          | Cohen's kappa | 70                 | 2                | 85.7        | 0         | 0      | 1        |
|        | DPM 4          | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN      |
|        | DPM 5          | Cohen's kappa | 70                 | 2                | 91.4        | 0         | NaN    | NaN      |
|        | DPM 6          | Cohen's kappa | 70                 | 2                | 68.6        | 0         | NaN    | NaN      |
|        | DPM 7          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN      |
|        | DPM 8          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN      |
|        | DPM 9          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN      |
|        | DPM 10         | Cohen's kappa | 70                 | 2                | 88.6        | 0         | NaN    | NaN      |
|        | DPM 11         | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN      |
|        | DPM 12         | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN      |
|        | DPM 4          | DPM 1         | Cohen's kappa      | 70               | 2           | 100       | NaN    | NaN      |
| DPM 2  |                | Cohen's kappa | 70                 | 2                | 85.7        | 0         | 0      | 1        |
| DPM 3  |                | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN      |
| DPM 5  |                | Cohen's kappa | 70                 | 2                | 91.4        | NaN       | NaN    | NaN      |
| DPM 6  |                | Cohen's kappa | 70                 | 2                | 68.6        | 0         | NaN    | NaN      |
| DPM 7  |                | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN      |
| DPM 8  |                | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN      |
| DPM 9  |                | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN      |
| DPM 10 |                | Cohen's kappa | 70                 | 2                | 88.6        | 0         | NaN    | NaN      |
| DPM 11 |                | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN      |
| DPM 12 |                | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN      |
| DPM 5  |                | DPM 1         | Cohen's kappa      | 70               | 2           | 91.4      | 0      | -        |
|        | DPM 2          | Cohen's kappa | 70                 | 2                | 77.1        | -0.12     | -1.05  | 0.296    |
|        | DPM 3          | Cohen's kappa | 70                 | 2                | 91.4        | 0         | NaN    | NaN      |
|        | DPM 4          | Cohen's kappa | 70                 | 2                | 91.4        | 0         | NaN    | NaN      |
|        | DPM 6          | Cohen's kappa | 70                 | 2                | 77.1        | 0.34      | 3.78   | 0.000154 |
|        | DPM 7          | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736   | -0.631 | 0.528    |
|        | DPM 8          | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736   | -0.631 | 0.528    |
|        | DPM 9          | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736   | -0.631 | 0.528    |
|        | DPM 10         | Cohen's kappa | 70                 | 2                | 80          | -0.109    | -0.92  | 0.357    |
|        | DPM 11         | Cohen's kappa | 70                 | 2                | 91.4        | 0         | NaN    | NaN      |
|        | DPM 12         | Cohen's kappa | 70                 | 2                | 91.4        | 0         | NaN    | NaN      |
|        | DPM 6          | DPM 1         | Cohen's kappa      | 70               | 2           | 68.6      | 0      | NaN      |
| DPM 2  |                | Cohen's kappa | 70                 | 2                | 60          | -0.0889   | -0.841 | 0.4      |
| DPM 3  |                | Cohen's kappa | 70                 | 2                | 68.6        | 0         | NaN    | NaN      |
| DPM 4  |                | Cohen's kappa | 70                 | 2                | 68.6        | 0         | NaN    | NaN      |
| DPM 5  |                | Cohen's kappa | 70                 | 2                | 77.1        | 0.34      | 3.78   | 0.000154 |
| DPM 7  |                | Cohen's kappa | 70                 | 2                | 74.3        | 0.234     | 3.04   | 0.00235  |
| DPM 8  |                | Cohen's kappa | 70                 | 2                | 62.9        | -0.107    | -1.39  | 0.163    |
| DPM 9  |                | Cohen's kappa | 70                 | 2                | 74.3        | 0.234     | 3.04   | 0.00235  |
| DPM 10 |                | Cohen's kappa | 70                 | 2                | 74.3        | 0.279     | 2.82   | 0.00479  |
| DPM 11 |                | Cohen's kappa | 70                 | 2                | 68.6        | 0         | NaN    | NaN      |
| DPM 12 |                | Cohen's kappa | 70                 | 2                | 68.6        | 0         | NaN    | NaN      |

DPM = Delphi Panel Member

TABLE 5.23: Continued\*

| Rater       | Agreement with | Test          | Number of Subjects | Number of raters | % agreement | kappa (k) | z      | p-value |
|-------------|----------------|---------------|--------------------|------------------|-------------|-----------|--------|---------|
| DPM 7       | DPM 1          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 2          | Cohen's kappa | 70                 | 2                | 80          | -0.0889   | -0.841 | 0.4     |
|             | DPM 3          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 4          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 5          | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736   | -0.631 | 0.528   |
|             | DPM 6          | Cohen's kappa | 70                 | 2                | 74.3        | 0.234     | 3.04   | 0.00235 |
|             | DPM 8          | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606   | -0.507 | 0.612   |
|             | DPM 9          | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606   | -0.507 | 0.612   |
|             | DPM 10         | Cohen's kappa | 70                 | 2                | 88.6        | 0.278     | 2.5    | 0.0125  |
|             | DPM 11         | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 12         | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 8          | DPM 1         | Cohen's kappa      | 70               | 2           | 94.3      | 0      | NaN     |
| DPM 2       |                | Cohen's kappa | 70                 | 2                | 80          | -0.0889   | -0.841 | 0.4     |
| DPM 3       |                | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
| DPM 4       |                | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
| DPM 5       |                | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736   | -0.631 | 0.528   |
| DPM 6       |                | Cohen's kappa | 70                 | 2                | 62.9        | -0.107    | -1.39  | 0.163   |
| DPM 7       |                | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606   | -0.507 | 0.612   |
| DPM 9       |                | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606   | -0.507 | 0.612   |
| DPM 10      |                | Cohen's kappa | 70                 | 2                | 88.6        | 0.278     | 2.5    | 0.0125  |
| DPM 11      |                | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
| DPM 12      |                | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
| DPM 9       |                | DPM 1         | Cohen's kappa      | 70               | 2           | 94.3      | 0      | NaN     |
|             | DPM 2          | Cohen's kappa | 70                 | 2                | 80          | -0.0889   | -0.841 | 0.4     |
|             | DPM 3          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 4          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 5          | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736   | -0.631 | 0.528   |
|             | DPM 6          | Cohen's kappa | 70                 | 2                | 74.3        | 0.234     | 3.04   | 0.00235 |
|             | DPM 7          | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606   | -0.507 | 0.612   |
|             | DPM 8          | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606   | -0.507 | 0.612   |
|             | DPM 10         | Cohen's kappa | 70                 | 2                | 82.9        | -0.0825   | -0.74  | 0.459   |
|             | DPM 11         | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 12         | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 10         | DPM 1         | Cohen's kappa      | 70               | 2           | 88.6      | 0      | NaN     |
| DPM 2       |                | Cohen's kappa | 70                 | 2                | 74.3        | -0.145    | -0.123 | 0.22    |
| DPM 3       |                | Cohen's kappa | 70                 | 2                | 88.6        | 0         | NaN    | NaN     |
| DPM 4       |                | Cohen's kappa | 70                 | 2                | 88.6        | 0         | NaN    | NaN     |
| DPM 5       |                | Cohen's kappa | 70                 | 2                | 80          | -0.109    | -0.92  | 0.357   |
| DPM 6       |                | Cohen's kappa | 70                 | 2                | 74.3        | 0.279     | 2.82   | 0.00479 |
| DPM 7       |                | Cohen's kappa | 70                 | 2                | 88.6        | 0.278     | 2.5    | 0.0125  |
| DPM 8       |                | Cohen's kappa | 70                 | 2                | 88.6        | 0.278     | 2.5    | 0.0125  |
| DPM 9       |                | Cohen's kappa | 70                 | 2                | 82.9        | -0.0825   | -0.74  | 0.459   |
| DPM 11      |                | Cohen's kappa | 70                 | 2                | 88.6        | 0         | NaN    | NaN     |
| DPM 12      |                | Cohen's kappa | 70                 | 2                | 88.6        | 0         | NaN    | NaN     |
| DPM 11      |                | DPM 1         | Cohen's kappa      | 70               | 2           | 100       | NaN    | NaN     |
|             | DPM 2          | Cohen's kappa | 70                 | 2                | 85.7        | 0         | 0      | 1       |
|             | DPM 3          | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN     |
|             | DPM 4          | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN     |
|             | DPM 5          | Cohen's kappa | 70                 | 2                | 91.4        | 0         | NaN    | NaN     |
|             | DPM 6          | Cohen's kappa | 70                 | 2                | 68.6        | 0         | NaN    | NaN     |
|             | DPM 7          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 8          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 9          | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
|             | DPM 10         | Cohen's kappa | 70                 | 2                | 88.6        | 0         | NaN    | NaN     |
|             | DPM 12         | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN     |
|             | DPM 12         | DPM 1         | Cohen's kappa      | 70               | 2           | 100       | NaN    | NaN     |
| DPM 2       |                | Cohen's kappa | 70                 | 2                | 85.7        | 0         | 0      | 1       |
| DPM 3       |                | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN     |
| DPM 4       |                | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN     |
| DPM 5       |                | Cohen's kappa | 70                 | 2                | 91.4        | 0         | NaN    | NaN     |
| DPM 6       |                | Cohen's kappa | 70                 | 2                | 68.6        | 0         | NaN    | NaN     |
| DPM 7       |                | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
| DPM 8       |                | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
| DPM 9       |                | Cohen's kappa | 70                 | 2                | 94.3        | 0         | NaN    | NaN     |
| DPM 10      |                | Cohen's kappa | 70                 | 2                | 88.6        | 0         | NaN    | NaN     |
| DPM 11      |                | Cohen's kappa | 70                 | 2                | 100         | NaN       | NaN    | NaN     |
| All 12 DPMs |                |               | Fleiss' kappa      | 70               | 12          | -         | 0.0134 | 0.91    |

DPM = Delphi Panel Member



To further illustrate the results in Table 5.23, the descriptive results of the interrater agreement tests on the measuring instrument are displayed in Table 5.24:

**TABLE 5.24: DESCRIPTIVE RESULTS OF INTERRATER AGREEMENT TESTS ON THE MEASURING INSTRUMENT**

| Share  | Response - C (Correct) | Response - I (Incorrect) | Total Responses |
|--------|------------------------|--------------------------|-----------------|
| DPM 1  | 100.0%                 | 0.0%                     | 70              |
| DPM 2  | 85.7%                  | 14.3%                    | 70              |
| DPM 3  | 100.0%                 | 0.0%                     | 70              |
| DPM 4  | 100.0%                 | 0.0%                     | 70              |
| DPM 5  | 91.4%                  | 8.6%                     | 70              |
| DPM 6  | 68.6%                  | 31.4%                    | 70              |
| DPM 7  | 94.3%                  | 5.7%                     | 70              |
| DPM 8  | 94.3%                  | 5.7%                     | 70              |
| DPM 9  | 94.3%                  | 5.7%                     | 70              |
| DPM 10 | 88.6%                  | 11.4%                    | 70              |
| DPM 11 | 100.0%                 | 0.0%                     | 70              |
| DPM 12 | 100.0%                 | 0.0%                     | 70              |

DPM = Delphi Panel Member

From Table 5.24 it can be deduced that five of the Delphi panel members rated the draft measuring instrument as correct with a score of 100%. Only one Delphi panel member, Delphi panel member 6 (a Nursing Science Expert), rated the correctness of the draft measuring instrument below 85%, with a score of 68.6% correct, due to issues with accuracy, clarity and suitability of questions 5; 10; 24; 25; 30; 31; 34; 35; 59; 60; 65 and 66. Analysing the comments of Delphi panel member 6 regarding these questions, it was found that most of the issues stemmed from grammatical inconsistencies that were easily corrected by the researcher and thereafter accepted as correct by Delphi panel member 6.

**5.4.6 Conclusion of the reliability testing**

The results of the Cronbach’s Alpha reliability testing conducted on the six constructs (Gibb’s conceptual continuums) delivered a high to acceptable reliability reading (see sections 5.4.3.1 to 5.4.3.6 (Tables 5.5 to 5.16) and section 5.4.4 (Table 5.17). From these results the researcher concluded that all the items (based on the constructs: Gibb’s conceptual continuums, developed for inclusion into the measuring instrument – SDS questionnaire) were reliable.

The results of the Cronbach’s Alpha reliability testing were forwarded to the Delphi panel members, who made positive comments with regard to these results (see Annexure G).

On the premise of these comments the researcher decided to conduct kappa (interrater agreement) tests to further enhance the reliability of the measuring instrument. The kappa testing revealed a high level of agreement between the raters.

The results of the Cronbach's Alpha reliability testing, kappa testing and comments of the Delphi panel led the researcher to the conclusion that the measuring instrument (SDS), in its draft form was reliable and that the same measuring instrument (SDS) could be utilised to conduct the testing phase of the study.

#### **5.4.7 Consideration of other types of measuring scales**

The researcher considered the possibility of using other types of measuring scale. He considered reformulating all the items according to two different types of measuring scale, namely, a Likert Scale or a Visual Analogue Scale (VAS). A Likert scale contains a number of statements, and each statement is followed by a scale with responses ranging between *never*, *rarely*, *sometimes*, *frequently* and *always* (Burns & Grove 2009: 410-411). A Visual Analogue Scale, like an SDS, groups items in pairs of two, with a line (10mm long) between each pair of items (Visual Analogue Scales 2013:1).

After discussing the results with the members of the Delphi panel and statistician, the researcher decided that the problems encountered with the Semantic Differential Scale (SDS) in its draft form during the pre-testing of the instrument were not insurmountable, that only minor adjustments (such as grammatical adjustments) were necessary and that it was not necessary to develop another type of instrument for the study. Consequently, the researcher refrained from developing and administering a Likert or a Visual Analogue Scale. In his opinion, both instruments could have delivered even worse results than a SDS. In the case of a Likert scale, the responses are too wide to maintain the dichotomy required by the study, and in the case of a Visual Analogue Scale, respondents might not know where to mark their responses on a scale (100mm line), marking all responses down the middle of the scale and invalidating the scale. The researcher thus implemented the improved SDS instrument during the testing phase, with the initial polar statements contained in the original semantic differential scale. The reason for maintaining this two-choice item structure in the questionnaire lies in the importance for the researcher of retaining the dichotomous nature of the questionnaire, provided for by the conceptual model as explained previously.

## 5.5 CONCLUSION

A discussion of the development and pre-testing of the measuring instrument (SDS) was presented in this chapter. The main aspects for discussion in this chapter revolved around the:

- summary of the development of the measuring instrument (SDS)
- summary of the results during the pre-testing of the instrument (SDS)
- reliability of the measuring instrument (SDS).

In Chapter 6, the testing of the measuring instrument (SDS) is discussed with regard to the results of the study. These include a summary of the results of the testing phase, according to the following aspects:

- analysis of the biographical data
- validity of the measuring instrument (SDS)
- statistics on items and the conceptual continuums.

## CHAPTER 6

### TESTING OF THE MEASURING INSTRUMENT (SDS) AND RESULTS

#### 6.1 INTRODUCTION

The first main objective of this study was to initiate the development of a valid and reliable measuring instrument. This objective was achieved during the developmental phase of the study through the use of a literature review (which included the quantitative research paradigm underlying the study, discussed in detail in Chapter 4); the Delphi technique and by pre-testing the draft measuring instrument (see Chapter 5), to develop items for the measuring instrument (SDS questionnaire). Chapter 5 was discussed according to a summary of the following:

- Development of the measuring instrument (SDS)
- Pre-testing of the SDS instrument
- Results of the pre-testing of the instrument (SDS)
- Reliability analysis of the items of the conceptual constructs in the instrument

The second main objective of this study was to test the developed measuring instrument on the selected study population. This objective was achieved by statistically testing the three research questions (formulated in Chapters 1 and 2) in an attempt to assess whether the professional nurses in public hospitals have a supportive or defensive communication climate focus. This was achieved within the quantitative paradigm, by applying a non-experimental research design to test the measuring instrument. The results of this testing phase are reported on in this chapter according to the following aspects:

- Analysis of the biographical data
- Reliability and validity of the instrument
- Statistics on items and the conceptual continuums

## 6.2 ANALYSIS OF THE BIOGRAPHICAL DATA

In this section, the biographical information contained in the questionnaire is reported on under the headings “site details” and “respondent details”. Biographical data were important because they provided additional information about the respondents, which in turn assisted in the interpretation of the findings pertaining to the research questions.

The summary of the findings of the biographical data includes the distribution of respondents in the hospital, different tenure (time periods) in the hospital, type of nursing unit, ages of respondents, gender of respondents and languages of respondents. This data were also collected to answer the research questions pertaining to the communication climate of the respondents.

### 6.2.1 Site details

Frequencies obtained relating to the three hospitals involved in the current research are discussed in this section.

#### 6.2.1.1 Hospital presentation

The sampling frame consisted of all professional nurses, from three participating public hospitals, who met the sample eligibility criteria. In total, the sampling frame equated to 360 respondents. A total number of 270 (75%) respondents were selected randomly from the sampling frame. This sample equated to 3 x hospitals x 90 respondents = 270, as depicted in Table 6.1. There is no difference between hospital A, hospital B and hospital C with regard to the number of respondents. A response rate of 100% was obtained from the 270 respondents. Due to the importance of maintaining the dichotomy of the questionnaire, the researcher selected 90 questionnaires (based on the completeness of the responses) from each of the three hospitals; the incomplete questionnaires were omitted from the study.

TABLE 6.1: FREQUENCY DISTRIBUTION OF RESPONDENTS IN HOSPITALS (N = 270)

| HOSPITAL     | Sampling frame | Frequency (f) | Percent (%)   |
|--------------|----------------|---------------|---------------|
| Hospital A   | 125            | 90            | 72.00%        |
| Hospital B   | 120            | 90            | 75.00%        |
| Hospital C   | 115            | 90            | 78.00%        |
| <b>Total</b> | <b>360</b>     | <b>270</b>    | <b>75.00%</b> |

### 6.2.1.2 Tenure (period in hospitals)

Table 6.2 depicts the tenure (period in hospitals) of respondents. Regarding the distribution of tenure, 8 (2.9%) respondents had worked 1 to 3 years in their hospital, 129 (47.8%) respondents had worked between 4 and 6 years in the hospital, 92 (34.1%) respondents had worked between 7 and 9 years in the hospital and 41 (15.2%) had worked 10 or more years in the hospital. The highest number of respondents resorted within the 4 to 6 year time period (see Table 6.2).

**TABLE 6.2: FREQUENCY DISTRIBUTION OF RESPONDENTS' TENURE IN HOSPITAL (N = 270)**

| TENURE           | Hospital   | Frequency (f) | Percent (%)  |
|------------------|------------|---------------|--------------|
| 1 – 3 years      | Hospital A | 1             | 0.4          |
|                  | Hospital B | 4             | 1.5          |
|                  | Hospital C | 3             | 1.1          |
| 4 – 6 years      | Hospital A | 42            | 15.5         |
|                  | Hospital B | 42            | 15.5         |
|                  | Hospital C | 45            | 16.7         |
| 7 – 9 years      | Hospital A | 34            | 12.6         |
|                  | Hospital B | 30            | 11.1         |
|                  | Hospital C | 28            | 10.4         |
| 10 or more years | Hospital A | 13            | 4.8          |
|                  | Hospital B | 14            | 5.2          |
|                  | Hospital C | 14            | 5.2          |
| <b>Total</b>     |            | <b>270</b>    | <b>100.0</b> |

### 6.2.1.3 Type of nursing units/wards

The four main types of unit/ward where the respondents are functioning are depicted in Table 6.3. From this data it can be deduced that 97 (36.0%) respondents are working in medical wards/units, 89 (32.9%) respondents are working in surgical wards/units, 77 (28.5%) respondents are working in specialised wards/units (i.e. Trauma or Operating Room) and 7 (2.6%) respondents are working in administrative wards/units.

**TABLE 6.3: FREQUENCY DISTRIBUTION OF THE TYPES OF UNIT/WARD (N = 270)**

| TYPE OF UNIT/WARD   | Hospital   | Frequency (f) | Percent (%)  |
|---------------------|------------|---------------|--------------|
| Medical unit        | Hospital A | 32            | 11.9         |
|                     | Hospital B | 33            | 12.2         |
|                     | Hospital C | 32            | 11.9         |
| Surgical unit       | Hospital A | 28            | 10.3         |
|                     | Hospital B | 31            | 11.5         |
|                     | Hospital C | 30            | 11.1         |
| Speciality unit     | Hospital A | 26            | 9.6          |
|                     | Hospital B | 24            | 8.9          |
|                     | Hospital C | 27            | 10.0         |
| Administrative unit | Hospital A | 4             | 1.5          |
|                     | Hospital B | 2             | 0.7          |
|                     | Hospital C | 1             | 0.4          |
| <b>Total</b>        |            | <b>270</b>    | <b>100.0</b> |

## 6.2.2 Respondents' details

The respondents' details obtained during the current research are discussed in the following section according to age, gender and language.

### 6.2.2.1 Age

Table 6.4 reflects the different age groups of the respondents.

**TABLE 6.4: FREQUENCY DISTRIBUTION OF THE AGE GROUPS OF RESPONDENTS (N = 270)**

| AGE GROUPS    | Hospitals  |            |            | f              | X <sup>1</sup> | Fx <sup>1</sup> | %            |
|---------------|------------|------------|------------|----------------|----------------|-----------------|--------------|
|               | Hospital A | Hospital B | Hospital C |                |                |                 |              |
| 21 – 25 years | 2          | 1          | 2          | 5              | 23             | 115             | 1.9          |
| 26 – 30 years | 13         | 12         | 14         | 39             | 28             | 1092            | 14.4         |
| 31 – 35 years | 15         | 11         | 10         | 36             | 33             | 1188            | 13.3         |
| 36 – 40 years | 12         | 12         | 15         | 39             | 38             | 1482            | 14.4         |
| 41 – 45 years | 11         | 13         | 11         | 35             | 43             | 1505            | 13.0         |
| 46 – 50 years | 16         | 21         | 17         | 54             | 48             | 2592            | 20.0         |
| 51 – 55 years | 13         | 13         | 12         | 38             | 53             | 2014            | 14.1         |
| 56 – 60 years | 5          | 4          | 5          | 14             | 58             | 812             | 5.2          |
| 61 – 65 years | 3          | 3          | 4          | 10             | 63             | 630             | 3.7          |
|               | <b>90</b>  | <b>90</b>  | <b>90</b>  | <b>N = 270</b> |                | <b>11430</b>    | <b>100.0</b> |

Mean =  $\frac{\sum fx^1}{N} = \frac{11430}{270} = 42.33$  i.e. 42 years  
 (Source: Unisa 2017:21; Mouton 2006:207)

From the data in Table 6.4 it can be deduced that 35 (13.0%) of the respondents are between 41 and 45 years of age. The average age of the respondents was 42 years and most of the respondents, 54 (20.0%), resorted in the 46- to 50-year age group. The younger combined age group of between 21 and 40 years included 119 (44.0%) of the respondents, while the older combined age group of between 41 and 65 years included 151 (56.0%) of the respondents.

By implication, due to such a high number of respondents aged above 40 years-of-age resorting in the age group 41 to 65, and all the respondents being professional nurses, it can be assumed that the professional nurse workforce in the three participating public hospitals is an ageing nurse workforce. This finding is in line with the South African trend of a national ageing nurse workforce (SANC 2016; Wildschut & Mqolozana 2008:15-16). Furthermore, when this finding is compared globally it is also found to be in line with the international trends of an ageing nurse workforce (Donelan, Dittus, Buerhaus, Dutwin & DesRoches 2008:144; Hill 2011:1; Sherman, Chiang-Hanisko & Koszalinski 2013:899; WHO 2010).

### 6.2.2.2 Gender

Table 6.5 reflects the gender of the respondents.

**TABLE 6.5: FREQUENCY DISTRIBUTION OF THE RESPONDENTS' GENDER (N = 270)**

| GENDER       | Frequency (f) | Percent (%)  |
|--------------|---------------|--------------|
| Male         | 25            | 9.3          |
| Female       | 245           | 90.7         |
| <b>Total</b> | <b>270</b>    | <b>100.0</b> |

From Table 6.5 it can be seen that only 25 (9.3%) of the respondents were male and 245 (90.7%) of the respondents were female. Due to the nursing profession being a female-dominated profession, this finding is also in line with the gender distribution statistics of the SANC (2014), and accurately reflects the prevalent disproportionate gender ratio tendency in nursing within South African public hospitals (Brown 2009:125-126; Neighbours 2012; Reinecke 2014:3).

### 6.2.2.3 Language

The home language preference of the respondents involved in the current study is depicted in Table 6.6.

**TABLE 6.6: FREQUENCY DISTRIBUTION OF THE RESPONDENTS' HOME LANGUAGES (N = 270)**

| HOME LANGUAGE | Frequency (f) | Percent (%)  |
|---------------|---------------|--------------|
| Afrikaans     | 28            | 10.4         |
| English       | 54            | 20.0         |
| African       | 177           | 65.5         |
| Other         | 11            | 4.1          |
| <b>Total</b>  | <b>270</b>    | <b>100.0</b> |

From the data in Table 6.6 it can be deduced that the majority, 177 (65.5%), of the respondents spoke one of the indigenous *African* languages, 82 (30.4%) spoke a mixture of Afrikaans and/or English and the rest of the respondents, 11 (4.1%), spoke other languages.

At this point the researcher needs to clarify to the reader the term *African*. The researcher used the term to refer to all vernacular languages spoken in South Africa; it includes the languages isiZulu, isiXhosa, Setswana, Sepedi, Sesotho, Xitsonga, siSwati, isiNdebele and Tshivenda. The rationale for grouping these languages under one umbrella term was that one term would simplify the data analysis process.



## **6.3 VALIDITY AND RELIABILITY OF THE INSTRUMENT**

To determine the validity and reliability of an instrument, it must be noted that the items (questions) measuring the constructs (conceptual continuums) under investigation are directly responsible for the validity and reliability of the instrument. The constructs under investigation in this current study all pertain to the communication climate focus (orientation) of professional nurses at three public hospitals in the Gauteng province.

### **6.3.1 Response coding**

The questions were coded on a computer in an effort to combine the responses into sets of scores. The coding was done as follows:

- Responses marked on levels 1–3 of the SDS are deemed defensive communication behaviour orientation responses.
- Responses marked on level 4 of the SDS are deemed neutral (undecided) communication behaviour orientation responses.
- Responses marked on levels 5–7 of the SDS are deemed supportive communication behaviour orientation responses.

As with to the pre-testing of the instrument, the respondents (professional nurses) had to provide *their own communication behaviour orientation* and *their perception* of the *communication behaviour orientation of the operational managers* in their wards/units. During the presentation and discussion of the data and findings, the respondents' communication behaviour is indicated by "professional nurse" and the perceptions of operational manager communication behaviour by "operational manager".

### **6.3.2 Validity of the measuring instrument**

*Validity* refers to the relevance of a measure, thus whether an instrument measures the concept it claims to measure (De Vos et al 2011:173; Polit & Beck 2012:745). To ensure the validity of the measuring instrument:

- The Gibb's Defensive Communication Climate Paradigm served as the foundation for formulating the items for the measuring instrument.
- The researcher presented the instrument to the Delphi panel of experts (during the first round) to evaluate the face and content validity of the instrument.

- The instrument was subjected to a pre-testing, which included rigorous reliability testing by means of Cronbach's Alpha and Kappa testing.

The validity of the measuring instrument was discussed in detail in section 4.5.2.2.2.

### **6.3.3 Reliability of the measuring instrument**

*Reliability* is the consistency, constancy or dependability, accuracy and precision with which an instrument measures the attribute it is designed to measure (De Vos et al 2011:177; Burns & Grove 2009:377, 719; Polit & Beck 2012:741).

As with the pre-test reliability assessment, the statistician performed a Cronbach's Alpha reliability analysis on the constructs (six Gibb's conceptual continuums) to assess the reliability of the instrument during the testing of the instrument. The Cronbach's Alpha is a reliability index that estimates the internal consistency or homogeneity of a measure comprising several items or subparts, and refers to construct reliability (Polit & Beck 2012:724). Usually a level of 0.7 or higher is an accepted level of measurement (Tavokol & Dennick 2011:54).

The first set of Cronbach's Alpha reliability results, displayed in this section, will indicate the Cronbach's Alpha scores *per construct* (conceptual continuum), for the respondents' communication behaviour, indicated by 'professional nurse' and the Cronbach's Alpha scores *per construct* (conceptual continuum) for the respondents' perception of the operational manager communication behaviour, indicated by 'operational manager' (see Table 6.7).

The second set of Cronbach's Alpha reliability results, displayed in this section, will indicate the Cronbach's Alpha scores *per item* for the respondents' communication behaviour constructs and the Cronbach's Alpha scores *per item* for the respondents' perception of the operational manager communication behaviour constructs (see Table 6.8).

#### **6.3.3.1 Cronbach's Alpha reliability results for the six constructs**

Table 6.7 displays a summary of the Cronbach's Alpha reliability scores per continuum according to the three utilised sites (hospitals).

**TABLE 6.7: CRONBACH'S ALPHA RELIABILITY COEFFICIENTS OF THE SIX CONSTRUCTS PER HOSPITAL (N = 270)**

| Continuum                       | Item (Question) | Number of items | HOSPITALS  |      |         |            |      |         |            |      |         | Cronbach alpha reliability coefficient |
|---------------------------------|-----------------|-----------------|------------|------|---------|------------|------|---------|------------|------|---------|--|
|                                 |                 |                 | Hospital A |      |         | Hospital B |      |         | Hospital C |      |         |  |
|                                 |                 |                 | N          | Mean | Std Dev | N          | Mean | Std Dev | N          | Mean | Std Dev |  |
| PN: Evaluation-Description      | 1-5             | 5               | 90         | 4.66 | 1.47    | 90         | 4.96 | 1.27    | 90         | 5.03 | 1.26    | 0.886                                  |
| OM: Evaluation-Description      | 6-10            | 5               | 90         | 4.46 | 1.55    | 90         | 4.67 | 1.24    | 90         | 4.74 | 1.27    | 0.894                                  |
| PN: Control-Problem Orientation | 11-16           | 6               | 90         | 4.97 | 1.40    | 90         | 5.17 | 1.07    | 90         | 5.20 | 1.01    | 0.833                                  |
| OM: Control-Problem Orientation | 17-22           | 6               | 90         | 4.43 | 1.64    | 90         | 4.62 | 1.50    | 90         | 4.77 | 1.49    | 0.922                                  |
| PN: Strategy-Spontaneity        | 23-28           | 6               | 90         | 4.49 | 1.71    | 90         | 4.70 | 1.54    | 90         | 4.79 | 1.51    | 0.940                                  |
| OM: Strategy-Spontaneity        | 29-34           | 6               | 90         | 4.06 | 1.79    | 90         | 4.19 | 1.64    | 90         | 4.29 | 1.68    | 0.947                                  |
| PN: Neutrality-Empathy          | 35-39           | 5               | 90         | 4.57 | 1.65    | 90         | 4.74 | 1.48    | 90         | 4.84 | 1.47    | 0.918                                  |
| OM: Neutrality-Empathy          | 40-44           | 5               | 90         | 4.21 | 1.72    | 90         | 4.41 | 1.60    | 90         | 4.50 | 1.67    | 0.927                                  |
| PN: Superiority-Equality        | 45-50           | 6               | 90         | 4.39 | 1.62    | 90         | 4.57 | 1.53    | 90         | 4.69 | 1.48    | 0.926                                  |
| OM: Superiority-Equality        | 51-56           | 6               | 90         | 4.31 | 1.61    | 90         | 4.49 | 1.50    | 90         | 4.66 | 1.45    | 0.924                                  |
| PN: Certainty-Provisionalism    | 57-62           | 6               | 90         | 4.72 | 1.61    | 90         | 4.94 | 1.38    | 90         | 5.01 | 1.36    | 0.929                                  |
| OM: Certainty-Provisionalism    | 63-68           | 6               | 90         | 3.94 | 1.75    | 90         | 4.17 | 1.60    | 90         | 4.23 | 1.63    | 0.935                                  |

p < 0.05 level

PN = Professional nurse OM =Operational manager

According to Table 6.7, the Cronbach's Alpha statistics for all the continuums are above 0.8, which is the preferred statistic indicating a high reliability. It is clear that hospital C has the highest mean scores on all the continuums, followed by hospital B and hospital A, the latter delivered the lowest overall mean scores on all the continuums). Thus it can be deduced that the respondents in hospital C indicated the most supportive communication behaviour orientation overall, and the respondents in hospital A indicated the least supportive communication behaviour orientation overall.

### 6.3.3.2 Cronbach's Alpha reliability results for the individual items

Table 6.8 displays the Cronbach's Alpha reliability results for the individual items (questions) for each of the constructs.

Considering the output in Table 6.8, the overall Cronbach's Alpha scores for all the items in all the constructs were above 0.8. Some of the items delivered a score of above 0.9. From the results of the *Corrected Item-Total Correlation* it can be assumed that the correlation of the statements/items with the rest was high on all the statements and therefore all the statements can be deemed reliable.

TABLE 6.8: ITEM-TOTAL RELIABILITY RESULTS PER CONTINUUM (N = 270)\*

| CONTINUUM                                       | ITEM            | N   | Scale Mean | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|-----------------|-----|------------|--------------------------------|----------------------------------|----------------------------------|
| PN: Evaluation-Description Continuum            | C11 Question 1  | 270 | 18.896     | 32.755                         | .753                             | .863                             |
|   | C12 Question 2  | 270 | 18.578     | 34.594                         | .743                             | .872                             |
|   | C13 Question 3  | 270 | 19.256     | 27.224                         | .814                             | .840                             |
|   | C14 Question 4  | 270 | 21.256     | 21.009                         | .753                             | .858                             |
|   | C15 Question 5  | 270 | 19.889     | 26.686                         | .708                             | .874                             |
| OM: Evaluation-Description Continuum            | C16 Question 6  | 270 | 17.826     | 31.579                         | .775                             | .865                             |
|   | C17 Question 7  | 270 | 18.133     | 28.265                         | .792                             | .858                             |
|   | C18 Question 8  | 270 | 20.496     | 32.563                         | .645                             | .890                             |
|   | C19 Question 9  | 270 | 18.419     | 27.858                         | .749                             | .871                             |
|   | C20 Question 10 | 270 | 17.644     | 31.539                         | .768                             | .866                             |
| PN: Control-Problem Orientation Continuum       | C21 Question 11 | 270 | 25.204     | 33.843                         | .793                             | .847                             |
|   | C22 Question 12 | 270 | 25.778     | 30.716                         | .781                             | .850                             |
|   | C23 Question 13 | 270 | 27.537     | 34.294                         | .540                             | .899                             |
|   | C24 Question 14 | 270 | 25.115     | 35.879                         | .734                             | .858                             |
|   | C25 Question 15 | 270 | 24.841     | 38.618                         | .719                             | .866                             |
|   | C26 Question 16 | 270 | 24.933     | 36.970                         | .749                             | .859                             |
| OM: Control-Problem Orientation Continuum       | C27 Question 17 | 270 | 23.107     | 58.721                         | .752                             | .913                             |
|   | C28 Question 18 | 270 | 24.337     | 61.563                         | .665                             | .925                             |
|   | C29 Question 19 | 270 | 22.941     | 57.892                         | .857                             | .897                             |
|   | C30 Question 20 | 270 | 22.941     | 58.026                         | .856                             | .897                             |
|   | C31 Question 21 | 270 | 22.478     | 62.407                         | .798                             | .906                             |
|   | C32 Question 22 | 270 | 22.456     | 65.379                         | .781                             | .910                             |
| PN: Strategy-Spontaneity Continuum              | C33 Question 23 | 270 | 22.648     | 70.445                         | .765                             | .936                             |
|   | C34 Question 24 | 270 | 22.800     | 66.071                         | .824                             | .928                             |
|   | C35 Question 25 | 270 | 23.422     | 60.460                         | .844                             | .926                             |
|   | C36 Question 26 | 270 | 24.170     | 62.863                         | .791                             | .933                             |
|   | C37 Question 27 | 270 | 23.237     | 62.315                         | .879                             | .921                             |
|   | C38 Question 28 | 270 | 23.556     | 61.861                         | .845                             | .925                             |
| OM: Strategy-Spontaneity Continuum              | C39 Question 29 | 270 | 20.285     | 74.591                         | .813                             | .940                             |
|   | C40 Question 30 | 270 | 20.337     | 73.815                         | .859                             | .935                             |
|   | C41 Question 31 | 270 | 21.048     | 70.299                         | .911                             | .928                             |
|   | C42 Question 32 | 270 | 21.081     | 70.990                         | .896                             | .930                             |
|   | C43 Question 33 | 270 | 21.926     | 76.195                         | .759                             | .946                             |
|   | C44 Question 34 | 270 | 20.748     | 73.156                         | .791                             | .943                             |
| PN: Neutrality-Empathy Continuum                | C45 Question 35 | 270 | 18.248     | 43.303                         | .719                             | .915                             |
|   | C46 Question 36 | 270 | 19.741     | 36.163                         | .794                             | .899                             |
|   | C47 Question 37 | 270 | 18.659     | 37.653                         | .819                             | .893                             |
|   | C48 Question 38 | 270 | 19.267     | 34.858                         | .860                             | .884                             |
|   | C49 Question 39 | 270 | 18.396     | 39.965                         | .780                             | .901                             |
| OM: Neutrality-Empathy Continuum                | C50 Question 40 | 270 | 18.363     | 45.035                         | .767                             | .919                             |
|   | C51 Question 41 | 270 | 17.322     | 42.769                         | .863                             | .900                             |
|   | C52 Question 42 | 270 | 17.133     | 43.819                         | .868                             | .899                             |
|   | C53 Question 43 | 270 | 16.633     | 49.155                         | .745                             | .923                             |
|   | C54 Question 44 | 270 | 17.941     | 43.892                         | .812                             | .910                             |
| PN: Superiority-Equality Continuum              | C55 Question 45 | 270 | 22.078     | 63.009                         | .770                             | .916                             |
|   | C56 Question 46 | 270 | 23.463     | 57.915                         | .802                             | .911                             |
|   | C57 Question 47 | 270 | 22.093     | 65.289                         | .772                             | .917                             |
|   | C58 Question 48 | 270 | 23.900     | 58.232                         | .762                             | .918                             |
|   | C59 Question 49 | 270 | 22.581     | 57.835                         | .853                             | .904                             |
| OM: Superiority-Equality Continuum              | C60 Question 50 | 270 | 22.367     | 60.322                         | .795                             | .912                             |
|   | C61 Question 51 | 270 | 23.411     | 56.213                         | .798                             | .908                             |
|   | C62 Question 52 | 270 | 23.093     | 55.772                         | .823                             | .904                             |
|   | C63 Question 53 | 270 | 21.737     | 64.053                         | .754                             | .915                             |
|   | C64 Question 54 | 270 | 21.600     | 64.672                         | .749                             | .916                             |
|   | C65 Question 55 | 270 | 22.663     | 55.161                         | .840                             | .902                             |
|   | C66 Question 56 | 270 | 22.163     | 58.687                         | .766                             | .912                             |
| PN: Certainty-Provisionalism Continuum          | C67 Question 57 | 270 | 24.604     | 50.604                         | .846                             | .909                             |
|   | C68 Question 58 | 270 | 25.396     | 48.746                         | .835                             | .912                             |
|   | C69 Question 59 | 270 | 25.004     | 48.056                         | .886                             | .903                             |
|   | C70 Question 60 | 270 | 23.581     | 62.438                         | .646                             | .935                             |
|   | C71 Question 61 | 270 | 24.081     | 54.581                         | .799                             | .915                             |
|   | C72 Question 62 | 270 | 24.037     | 56.474                         | .802                             | .916                             |
| OM: Certainty-Provisionalism Continuum          | C73 Question 63 | 270 | 21.163     | 69.237                         | .803                             | .923                             |
|   | C74 Question 64 | 270 | 19.878     | 71.647                         | .788                             | .925                             |
|   | C75 Question 65 | 270 | 20.122     | 68.026                         | .827                             | .920                             |
|   | C76 Question 66 | 270 | 21.070     | 67.285                         | .862                             | .916                             |
|   | C77 Question 67 | 270 | 21.470     | 71.655                         | .792                             | .925                             |
|   | C78 Question 68 | 270 | 19.796     | 72.497                         | .774                             | .927                             |
| PN = Professional nurse/OM =Operational Manager | Valid N         | 270 |            |                                |                                  |                                  |

## 6.4 STATISTICS ON ITEMS AND CONCEPTUAL CONTINUUMS

The research questions set for this study, discussed in Chapters 1 and 2, are based on the communication behaviour of respondents, perceptions that they have regarding operational managers' communication behaviour, and their biographical details, in relation to the six conceptual continuums of the Gibb's model (described in Chapter 3).

### 6.4.1 Research question 1

***Research question 1: What is the communication behaviour orientation of the respondents with regard to the six Gibb's conceptual continuums?***

To test research question 1, the scores were calculated for all the professional nurse constructs (conceptual continuums). The scores represent the communication behaviour responses for each item (question). The reader is reminded that with the professional nurse constructs the respondents (professional nurses) had to provide *their own communication behaviour orientation*. Therefore, during the presentation and discussion of the data and findings, the respondents' own communication behaviour is indicated by "professional nurse".

The next discussion presents the specific response scores to individual items. Individual item scores are displayed in Tables 6.9 to 6.15. These scores are important because much of the literature support and discussion involves information directly pertaining to individual pairs of items (Annexure E: Instrument using Semantic Differential Scale Items) regarding the specific items. The items with a low supportive response score, according to the six conceptual continuums, denote a defensive communication climate orientation, while in contrast the items with a high supportive response score denote a more supportive communication climate orientation. The communication behaviour of the respondents and the respondents' perception of operational manager communication behaviour are also discussed where applicable.

#### ***6.4.1.1 Scores for items C11-15 (Q1–5): professional nurse: Evaluation-Description Continuum***

The scores for items C11-15 (Q1 – 5) are displayed in Table 6.9 on the professional nurse: Evaluation-Description Continuum.

**TABLE 6.9: SCORES FOR ITEMS C11-15: PROFESSIONAL NURSE: EVALUATION-DESCRIPTION CONTINUUM (N = 270)**

| Professional nurse: Evaluation-Description Continuum |    |                                  | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|--|----|----------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|  |    |                                  | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C11  | Q1 | Judges the work of others        | 16                          | 5.93% | 18                                 | 6.67%  | 236                                 | 87.41% | 270           | 100.00% |
| C12  | Q2 | Criticises the actions of others | 17                          | 6.30% | 6                                  | 2.22%  | 247                                 | 91.48% | 270           | 100.00% |
| C13  | Q3 | Blames others                    | 14                          | 5.19% | 57                                 | 21.11% | 199                                 | 73.70% | 270           | 100.00% |
| C14  | Q4 | Labels situations as good or bad | 5                           | 1.85% | 188                                | 69.63% | 77                                  | 28.52% | 270           | 100.00% |
| C15  | Q5 | Uses 'you language'              | 11                          | 4.07% | 97                                 | 35.93% | 162                                 | 60.00% | 270           | 100.00% |

#### Question 4

In the professional nurse: Evaluation-Description Continuum (see Table 6.9), for item C14 (Q4) the scores indicate a more defensive orientation. In this instance, 77 (28.52%) of the respondents never label situations during conversations in their wards/units as good or bad: a supportive communication behaviour perspective. By contrast, 188 (69.63%) of the respondents indicated that they always label situations during conversations in their wards/units as good or bad: a defensive communication behaviour orientation. Labelling situations as good or bad could mean that these professional nurses lack the ability to describe situations in their wards/units. This creates a disturbing view of the real situation and does not hold the potential for critical analytical thinking and/or creative problem-solving in the nursing unit. In the corresponding item, in the operational manager: Evaluation-Description continuum, (see Table 6.17) for item C19 (Q9), the scores indicate a more supportive perception. Of the respondents, a total of 177 (65.56%) perceived that the operational managers in charge of their wards/units never describe situations during conversations as good or bad; a more supportive communication behaviour orientation. It is possible that operational managers, due to their operational experience, have the potential to view situations as multi-dimensional, from more than one perspective.

From a psychological perspective, Haidt (2001:818) argues that a large number of people do not make use of conscious reasoning but instead resort to moral judgement to make judgements on events or situations. When situations are judged as merely good or bad (indicating an affective valence), a moral judgement is made “without any awareness of having gone through the steps of searching, weighing evidence, or inferring a moral conclusion” (Haidt 2001:818). From a nursing perspective, Van den Heever, Poggenpoel and Myburgh (2015:116) state that what nurses perceive is not necessarily the truth, but rather what they believe to be their own reality, and not genuine.

In an effort to avoid their uncertainty about situations they may mask their ignorance or choose to be guided by their own values or by what is expected in a certain situation by the prescriptions of their roles. Judgements made by older, more experienced nurses, possessing practical and theoretical wisdom obtained from years of experience, could present as more genuine, as their judgements are “motivated by compassion [and] grounded in professional judgement” (Van den Heever et al 2015:115-116).

#### 6.4.1.2 Scores for items C21-26 (Q11–16): professional nurse: Control-Problem Orientation Continuum

The scores for items C21-26 (Q11–16) are displayed in Table 6.10 on the professional nurse: Control-Problem Orientation Continuum.

TABLE 6.10: SCORES FOR ITEMS C21-26: PROFESSIONAL NURSE: CONTROL-PROBLEM ORIENTATION CONTINUUM (N = 270)

| Professional nurse: Control-Problem Orientation Continuum |     |                                    | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|---|-----|------------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|   |     |                                    | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C21   | Q11 | Influences the behaviour of others | 14                          | 5.19% | 27                                 | 10.00% | 229                                 | 84.81% | 270           | 100.00% |
| C22   | Q12 | Adopts an authoritarian attitude   | 12                          | 4.44% | 68                                 | 25.19% | 190                                 | 70.37% | 270           | 100.00% |
| C23   | Q13 | Takes charge of conversations      | 5                           | 1.85% | 189                                | 70.00% | 76                                  | 28.15% | 270           | 100.00% |
| C24   | Q14 | Uses straightforward language      | 13                          | 4.81% | 22                                 | 8.15%  | 235                                 | 87.04% | 270           | 100.00% |
| C25   | Q15 | Open to finding best solutions     | 17                          | 6.30% | 5                                  | 1.85%  | 248                                 | 91.85% | 270           | 100.00% |
| C26   | Q16 | Imposes own point of view          | 15                          | 5.56% | 11                                 | 4.07%  | 244                                 | 90.37% | 270           | 100.00% |

#### Question 13

In the professional nurse: Control-Problem Orientation Continuum (see Table 6.10) for item C23 (Q13) the scores indicate a more defensive orientation. In this instance, only 76 (28.15%) of the respondents never take charge of all situations in conversations with others in their wards/units: a supportive communication behaviour perspective.

By contrast, 189 (70.00%) of the respondents indicated that they always take charge of situations in conversations with others in their wards/units: a defensive communication behaviour orientation. Some team members elect to take charge of conversations because it is important for them to be in control of all situations. This is not always a good tactic in communication, as interlocutors could perceive such team members as domineering. People who dominate conversations, according to Maner and Case (2016), are usually dominating people by nature and not good listeners.

Moreover, Govan and Hollins (2010:2) view the dominating of conversations as behaviour that is unconscious. This unconscious behaviour could be the result of the individualistic socialisation of certain people or groups of people, in believing that their opinions are more valuable than the opinions of others. Some domineering speakers, who are over-eager to express themselves and share their knowledge with others, tend to dominate conversations as well. Such people are already thinking of their next answer instead of listening to the speaker. Other domineering speakers tend to rush communication and have no respect for their communication counterparts. They normally also place less value on listening to and understanding others and are more focused on expressing their own views. Such individuals would also resort to the use of electronic communication devices such as cell phones and e-mail because through the use of these communication mediums they can take and maintain control of the communication and end conversations where and when they are displeased or disagree (McFarlane 2010:11).

#### 6.4.1.3 Scores for items C33-38 (Q23–28): professional nurse: Strategy-Spontaneity Continuum

The scores for items C33-38 (Q23–28) are displayed in Table 6.11 on the professional nurse: Strategy-Spontaneity Continuum.

TABLE 6.11: SCORES FOR ITEMS C33-38: PROFESSIONAL NURSE: STRATEGY-SPONTANEITY CONTINUUM (N = 270)

| Professional nurse: Strategy-Spontaneity Continuum |     |                                 | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|--|-----|---------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|  |     |                                 | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C33  | Q23 | Honest when dealing with others | 12                          | 4.44% | 35                                 | 12.96% | 223                                 | 82.59% | 270           | 100.00% |
| C34  | Q24 | Having hidden motives           | 12                          | 4.44% | 54                                 | 20.00% | 204                                 | 75.56% | 270           | 100.00% |
| C35  | Q25 | Distorts what is being said     | 11                          | 4.07% | 93                                 | 34.44% | 166                                 | 61.48% | 270           | 100.00% |
| C36  | Q26 | Using a direct approach         | 10                          | 3.70% | 150                                | 55.56% | 110                                 | 40.74% | 270           | 100.00% |
| C37  | Q26 | Accepting the ideas of others   | 12                          | 4.44% | 85                                 | 31.48% | 173                                 | 64.07% | 270           | 100.00% |
| C38  | Q28 | Displays a spontaneous attitude | 11                          | 4.07% | 107                                | 39.63% | 152                                 | 56.30% | 270           | 100.00% |

#### Question 26

In the professional nurse: Strategy-Spontaneity Continuum (see Table 6.11) for item C36 (Q26), the scores indicate a more defensive orientation. In this instance only 110 (40.74%) of the respondents always use a direct approach in conversations with others: a supportive communication behaviour perspective. By contrast, 150 (55.56%) of the respondents indicated that they never use a direct approach in conversations with others: a defensive communication behaviour orientation.



It seems that more professional nurses use indirect communication, instead of conveying information directly and straightforwardly to the recipient. Using indirect communication is often frustrating and time consuming for the recipient as he or she has to listen carefully to and sift through large amounts of unimportant information in an effort to find relevance. In the corresponding item, in the operational manager: Strategy-Spontaneity continuum (see Table 6.19) for item C42 (Q32), the scores indicate a slightly more supportive perception. Of the respondents, a total of 134 (49.63%) perceived the operational manager as being always direct during conversations, which is a more supportive communication behaviour. The direct approach could be referring to the instructional type of interactions of operational managers when in conversations with professional nurses. Often operational managers have to delegate tasks to professional nurses in a clear and concise instructional format (Jooste 2009:154), so as to avoid misunderstandings and error. The to-the-point format in which the instructions are conveyed could sound abrupt but might be necessary to emphasise the importance of the instructions.

#### 6.4.1.4 Scores for items C45-49 (Q35–39): professional nurse: Neutrality-Empathy Continuum

The scores for items C45-49 (Q35–39) are displayed in Table 6.12 on the professional nurse: Neutrality-Empathy Continuum.

TABLE 6.12: SCORES FOR ITEMS C45-49: PROFESSIONAL NURSE: NEUTRALITY-EMPATHY CONTINUUM (N = 270)

| Professional nurse: Neutrality-Empathy Continuum |     |  | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|--|-----|--|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|  |     |  | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C45  | Q35 | Respects the feelings of others        | 12                          | 4.44% | 32                                 | 11.85% | 226                                 | 83.70% | 270           | 100.00% |
| C46  | Q36 | Uses affectionate language             | 9                           | 3.33% | 147                                | 54.44% | 114                                 | 42.22% | 270           | 100.00% |
| C47  | Q37 | Shows indifference to others' feelings | 12                          | 4.44% | 67                                 | 24.81% | 191                                 | 70.74% | 270           | 100.00% |
| C48  | Q38 | Shows interest in others' problems     | 10                          | 3.70% | 116                                | 42.96% | 144                                 | 53.33% | 270           | 100.00% |
| C49  | Q39 | Becomes involved in conflicts          | 12                          | 4.44% | 51                                 | 18.89% | 207                                 | 76.67% | 270           | 100.00% |

#### Question 36

In the professional nurse: Neutrality-Empathy Continuum (see Table 6.12) for item C46 (Q36) the scores indicate a more defensive orientation. In this instance only 114 (42.22%) of the respondents always use affectionate language in conversations with others: a supportive communication behaviour. By contrast, 147 (54.44%) of the respondents indicated that they never use affectionate language in conversations with others in their wards/units: a defensive communication behaviour orientation.

Affectionate language forms part of the professional nurses' empathic role. If affectionate language is absent in the empathetic role of professional nurses it could potentially mean that they either lack this skill, or have the skill but are reluctant to display affection towards others. However, the foundation of mutual trust and respect in a relationship lies in the ability of the speaker, during a conversation with another person, to provide information about herself through the use of active listening and empathetic responses. It is equally important for the speaker to allow the listener an opportunity to share her personal information too, in an effort to provide a chance for the two interlocutors to get to know each other better (Mikanowicz & Gmeiner 2014:8).

It would be natural to assume that older, more experienced professional nurses would be more empathetic towards others, due to their years of experience in a caring profession. De Araújo and Da Silva (2012:626) claim, however, that experienced persons are not automatically more empathetic, nor use more affectionate language than inexperienced counterparts. On the contrary, communication skills such as the use of affectionate language are not acquired over time but through appropriate training. It can thus be expected that professional nurses will not obtain empathetic communication skills through years of clinical practice, but will only show an improvement in their use of affectionate language during conversations once they have received communication skills training.

#### 6.4.1.5 Scores for items C55-60 (Q45–50): professional nurse: Superiority-Equality Continuum

The scores for items C55-60 (Q45–50) are displayed in Table 6.13 on the professional nurse: Superiority-Equality Continuum.

TABLE 6.13: SCORES FOR ITEMS C55-60: PROFESSIONAL NURSE: SUPERIORITY-EQUALITY CONTINUUM (N = 270)

| Professional nurse: Superiority-Equality Continuum |     |   | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|--|-----|---|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|  |     |   | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C55  | Q45 | Emphasises own status                   | 12                          | 4.44% | 49                                 | 18.15% | 209                                 | 77.41% | 270           | 100.00% |
| C56  | Q46 | Makes others feel inadequate            | 9                           | 3.33% | 148                                | 54.81% | 113                                 | 41.85% | 270           | 100.00% |
| C57  | Q47 | Welcomes feedback and help              | 13                          | 4.81% | 38                                 | 14.07% | 219                                 | 81.11% | 270           | 100.00% |
| C58  | Q48 | Displays open attitude to other's views | 2                           | 0.74% | 179                                | 66.30% | 89                                  | 32.96% | 270           | 100.00% |
| C59  | Q49 | Respects the positions of others        | 13                          | 4.81% | 81                                 | 30.00% | 176                                 | 65.19% | 270           | 100.00% |
| C60  | Q50 | Treats others as inferior to self       | 12                          | 4.44% | 67                                 | 24.81% | 191                                 | 70.74% | 270           | 100.00% |

## Question 46

In the professional nurse: Superiority-Equality Continuum (see Table 6.13) for item C56 (Q46), the scores indicate a more defensive orientation. In this instance only 113 (41.85%) of the respondents never make others in their wards/units feel inadequate in conversations: a supportive communication behaviour. By contrast, 148 (54.81%) of the respondents indicated that they always make others in their wards/units feel inadequate during conversations: a defensive communication behaviour orientation. Often members in a close-knit team try to put others down by speaking in a condescending tone (Arnold & Underman Boggs 2011:453). Such inappropriate behaviour could make others in the team question their own knowledge and skills and leave them feeling insignificant.

## Question 48

In the professional nurse: Superiority-Equality Continuum (see Table 6.13) for item C58 (Q48), the scores indicate a more defensive orientation. In this instance only 89 (32.96%) of the respondents always display an open attitude to the views of others in their wards/units; a supportive communication behaviour. By contrast, 179 (66.30%) of the respondents indicated that they never display an open attitude to the views of others in their wards/units: a defensive communication behaviour orientation. Depriving another of an opinion is a negative communication behaviour; it does not belong in a nursing unit. The opinions of all team members are important as they could have an impact on patient care outcomes.

### 6.4.1.6 Scores for items C67-72 (Q57–62): professional nurse: Certainty-Provisionalism Continuum

The scores for items C67-72 (Q57–62) are displayed in Table 6.14 on the professional nurse: Certainty-Provisionalism Continuum.

TABLE 6.14: SCORES FOR ITEMS C67-72: PROFESSIONAL NURSE: CERTAINTY-PROVISIONALISM CONTINUUM (N = 270)

| Professional nurse: Certainty-Provisionalism Continuum |     |                                       | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|--|-----|---------------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|  |     |                                       | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C67  | Q57 | Have to be always right               | 9                           | 3.33% | 85                                 | 31.48% | 176                                 | 65.19% | 270           | 100.00% |
| C68  | Q58 | Rejects ideas and opposing views      | 7                           | 2.59% | 139                                | 51.48% | 124                                 | 45.93% | 270           | 100.00% |
| C69  | Q59 | Willing to adapt own ideas            | 10                          | 3.70% | 114                                | 42.22% | 146                                 | 54.07% | 270           | 100.00% |
| C70  | Q60 | Adopts a flexible attitude            | 17                          | 6.30% | 14                                 | 5.19%  | 239                                 | 88.52% | 270           | 100.00% |
| C71  | Q61 | Takes sides on issues                 | 11                          | 4.07% | 45                                 | 16.67% | 214                                 | 79.26% | 270           | 100.00% |
| C72  | Q62 | Adopts an doubting attitude to others | 12                          | 4.44% | 35                                 | 12.96% | 223                                 | 82.59% | 270           | 100.00% |

**Question 58**

In the professional nurse: Certainty-Provisionalism Continuum (see Table 6.14) for item C68 (Q58), the scores indicate a more defensive orientation. In this instance only 124 (45.93%) of the respondents never reject the ideas and opposing views of others in their wards/units; a supportive communication behaviour. By contrast, 139 (51.48%) of the respondents indicated that they always reject the ideas and opposing views of others in their wards/units: a defensive communication behaviour. Constantly rejecting the ideas of others is a worrying tendency, as team members need one another’s ideas and views in a demanding environment such as the nursing unit.

**6.4.1.7 Score for item C79 (Q69): professional nurse: General**

The score for item C79 (Q69) is displayed in Table 6.15 as professional nurse: General.

**TABLE 6.15: SCORE FOR ITEM C79: PROFESSIONAL NURSE: GENERAL (N = 270)**

| Professional nurse: General |     |                                 | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|-----------------------------|-----|---------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|                             |     |                                 | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C79                         | Q69 | Overall communication behaviour | 4                           | 1.48% | 76                                 | 28.15% | 190                                 | 70.37% | 270           | 100.00% |

**Question 69**

In professional nurse: General (see Table 6.15) for item C79 (Q69), the scores indicate a more supportive communication behaviour orientation. In this instance, 190 (70.37%) of the respondents indicated their overall communication behaviour as supportive: a supportive communication orientation. By contrast, 76 (28.15%) of the respondents indicated their overall communication behaviour as defensive: a defensive communication behaviour orientation. This finding is in line with the overall supportive score for all professional nurse constructs (conceptual continuums).

**6.4.1.8 Combined mean scores of responses per professional nurse continuums**

This section discusses the combined mean scores of the respondents’ communication behaviour orientation (professional nurse), per Gibb’s conceptual continuums. The calculated mean scores are displayed in Table 6.16.

**TABLE 6.16: MEAN SCORES OF RESPONSES PER CONCEPTUAL CONTINUUM (N = 270)**

| Gibb's conceptual continuums for Professional nurses and Operational managers |              | N   | Mean | Standard Deviation |
|---|--------------|-----|------|--------------------|
| PN: Evaluation-Description  | Q1-5 score   | 270 | 4.88 | 1.34               |
| PN: Control-Problem Orientation   | Q11-16 score | 270 | 5.11 | 1.17               |
| PN: Strategy-Spontaneity  | Q23-28 score | 270 | 4.66 | 1.59               |
| PN: Neutrality-Empathy  | Q35-39 score | 270 | 4.72 | 1.53               |
| PN: Superiority-Equality  | Q45-50 score | 270 | 4.55 | 1.54               |
| PN: Certainty-Provisionalism  | Q57-62 score | 270 | 4.89 | 1.45               |
| Valid N   |              | 270 |      |                    |

PN = Professional nurse

Regarding the professional nurse conceptual continuums, displayed in Table 6.16, the respondents indicated a supportive communication climate focus overall. The lowest mean score for the professional nurse communication behaviour constructs was found in the professional nurse: Superiority-Equality continuum (mean score = 4.55). The professional nurse communication behaviour construct that delivered the highest mean score was found in the professional nurse: Control-Problem Orientation continuum (mean score = 5.11).

#### **6.4.2 Research question 2**

***Research question 2: What are the respondents' perceptions of the operational managers' communication behaviour orientation with regard to the six Gibb's conceptual continuums?***

To test research question 2, the scores were calculated in the same way as those for research question 1, but this time for all the operational manager constructs (conceptual continuums). The scores represent the communication behaviour responses for each item (question). The reader is reminded that with the operational manager constructs the respondents (professional nurses) had to provide *their perception* of the *communication behaviour orientation* of their operational managers. Therefore, during the presentation and discussion of the data and findings, the respondents' perceptions of their operational manager's communication behaviour is indicated by "operational manager".

The next discussion presents the specific responses scores to individual items. Individual item scores are displayed in Tables 6.17 to 6.23. These scores are important, because much of the literature support and discussion involves information directly pertaining to individual pairs of items (Annexure E: Instrument using Semantic Differential Scale Items) regarding the specific items.

The items with a low supportive response score, according to the six conceptual continuums, denote a defensive communication climate orientation; by contrast the items with a high supportive response score point to a more supportive communication climate orientation.

#### 6.4.2.1 Scores for items C16-20 (Q6–10): operational manager: Evaluation-Description Continuum

The scores for items C16-20 (Q6 –10) are displayed in Table 6.17 on the operational manager: Evaluation-Description Continuum.

TABLE 6.17: SCORES FOR ITEMS C16-20: OPERATIONAL MANAGER: EVALUATION-DESCRIPTION CONTINUUM (N = 270)

| Operational manager: Evaluation-Description Continuum |     |                                  | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|---|-----|----------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|   |     |                                  | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C16   | Q6  | Judges the work of others        | 12                          | 4.44% | 35                                 | 12.96% | 223                                 | 82.59% | 270           | 100.00% |
| C17   | Q7  | Criticises the actions of others | 12                          | 4.44% | 60                                 | 22.22% | 198                                 | 73.33% | 270           | 100.00% |
| C18   | Q8  | Blames others for problems       | 6                           | 2.22% | 227                                | 84.07% | 37                                  | 13.70% | 270           | 100.00% |
| C19   | Q9  | Labels situations as good or bad | 12                          | 4.44% | 81                                 | 30.00% | 177                                 | 65.56% | 270           | 100.00% |
| C20   | Q10 | Uses 'you language'              | 15                          | 5.56% | 27                                 | 10.00% | 228                                 | 84.44% | 270           | 100.00% |

#### Question 8

In the operational manager: Evaluation-Description Continuum (see Table 6.17) for item C18 (Q8), the score indicates a more defensive orientation. In this instance 227 (84%) of the respondents perceive that the operational managers in charge of their wards/units always blame others for problems: a defensive communication behaviour orientation. By contrast, 37 (14%) of the respondents indicated that the operational managers in charge of their wards/units never blame others for problems. In a defensive perception, based on the items in this pair, the locus of control is located external to the professional nurse (see section 2.9 in Chapter 2).

Blaming seems to be a natural process and part of the natural defensive nature of all humans. According to Dahlkemper (2013:163), it is common for people to blame others. People are socialised to blame others for any mistakes that might occur; this is indicative of a desire to protect the self by blaming others. In spite of this, the practice of blaming, which points to a loss of control over personal feelings, is by no means validated or condoned, especially not in the nursing arena. As well as assuming responsibility for all actions, nurses also need to assume responsibility for their personal feelings during communication (Dahlkemper 2013:163).

Using fewer “I”-messages and more “you”-messages to describe their personal feelings regarding certain situations, shows not only a willingness to accept such personal feelings but would also eliminate blame from conversations (Mikanowicz & Gmeiner 2014:8).

#### 6.4.2.2 Scores for items C27-32 (Q17–22): operational manager: Control-Problem Orientation Continuum

The scores for items C27-32 (Q17–22) are displayed in Table 6.18 on the operational manager: Control-Problem Orientation Continuum.

TABLE 6.18: SCORES FOR ITEMS C27-32: OPERATIONAL MANAGER: CONTROL-PROBLEM ORIENTATION CONTINUUM (N = 270)

| Operational manager: Control-Problem Orientation Continuum |     |                                    | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|--|-----|------------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|  |     |                                    | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C27  | Q17 | Influences the behaviour of others | 11                          | 4.07% | 92                                 | 34.07% | 167                                 | 61.85% | 270           | 100.00% |
| C28  | Q18 | Adopts an authoritarian attitude   | 3                           | 1.11% | 184                                | 68.15% | 83                                  | 30.74% | 270           | 100.00% |
| C29  | Q19 | Takes charge of conversations      | 12                          | 4.44% | 81                                 | 30.00% | 177                                 | 65.56% | 270           | 100.00% |
| C30  | Q20 | Uses straightforward language      | 12                          | 4.44% | 81                                 | 30.00% | 177                                 | 65.56% | 270           | 100.00% |
| C31  | Q21 | Open to finding best solutions     | 12                          | 4.44% | 53                                 | 19.63% | 205                                 | 75.93% | 270           | 100.00% |
| C32  | Q22 | Imposes own point of view          | 13                          | 4.81% | 38                                 | 14.07% | 219                                 | 81.11% | 270           | 100.00% |

#### Question 18

In the operational manager: Control-Problem Orientation Continuum (see Table 6.18) for item C28 (Q18), the score indicates a more defensive orientation. In this instance, 83 (30.74%) of the respondents perceived that the operational managers in charge of their wards/units never adopted an authoritarian attitude during conversations: a supportive communication behaviour. By contrast, 184 (68.15%) of the respondents indicated that the operational managers in charge of their wards/units always adopted an authoritarian attitude during conversations: a defensive communication behaviour orientation. From this finding, it appears that most professional nurses do not feel free to communicate with their operational managers. This finding is significant because continuous inter-professional communication is essential in a nursing unit. The operational manager has to be informed regarding the functioning of the nursing unit, and in the event that professional nurses feel hesitant to communicate with the operational manager, important information regarding the well-being of the patient might not be transferred.

As much as it is important for the operational manager to be in an authoritarian position due to his or her hierarchical positioning, it is even more important to be approachable to staff, who require the experience, knowledge and skills of the operational manager. Atwater and Waldman (2012:36) postulate that managers who are “high” on authoritarian communication characteristics are also more punitive and deliver more negative feedback than managers who are “low” on authoritarian communication characteristics.

Managers and subordinates are not on the same authority level and the differences in authority between the two groups can become problematic. The main problems lie in the manner in which the manager would expect the subordinate to communicate with him or her and the manner in which the manager expects the subordinate to follow his or her orders (Atwater & Waldman 2012:36-37). Managers will have to realise that everyone has different beliefs and that these differences need to be addressed early in the working relationship between them and their subordinates, before they become problematic.

#### 6.4.2.3 Scores for items C39-44 (Q29–34): operational manager: Strategy-Spontaneity Continuum

The scores for items C39-44 (Q29–34) are displayed in Table 6.19 on the operational manager: Strategy-Spontaneity Continuum.

TABLE 6.19: SCORES FOR ITEMS C39-44: OPERATIONAL MANAGER: STRATEGY-SPONTANEITY CONTINUUM (N = 270)

| Operational manager: Strategy-Spontaneity Continuum |     |                                 | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|---|-----|---------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|   |     |                                 | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C39   | Q29 | Honest when dealing with others | 12                          | 4.44% | 76                                 | 28.15% | 182                                 | 67.41% | 270           | 100.00% |
| C40   | Q30 | Have hidden motives             | 12                          | 4.44% | 84                                 | 31.11% | 174                                 | 64.44% | 270           | 100.00% |
| C41   | Q31 | Distorts what is being said     | 11                          | 4.07% | 124                                | 45.93% | 135                                 | 50.00% | 270           | 100.00% |
| C42   | Q32 | Uses a direct approach          | 11                          | 4.07% | 125                                | 46.30% | 134                                 | 49.63% | 270           | 100.00% |
| C43   | Q33 | Accepts the ideas of others     | 5                           | 1.85% | 188                                | 69.63% | 77                                  | 28.52% | 270           | 100.00% |
| C44   | Q34 | Displays a spontaneous attitude | 12                          | 4.44% | 106                                | 39.26% | 152                                 | 56.30% | 270           | 100.00% |

#### Question 33

In the operational manager: Strategy-Spontaneity Continuum (see Table 6.19) for item C43 (Q33), the scores indicate a more defensive orientation. In this instance only 77 (28.52%) of the respondents perceived that operational managers in charge of their wards/units always accept the ideas of others: a supportive communication behaviour orientation.



By contrast, it is the perception of 188 (69.63%) of the respondents that operational managers in charge of their wards/units never accept the ideas of others: a defensive communication behaviour orientation.

This finding, although only a perception of the professional nurses that their operational managers do not accept the ideas of others, is disconcerting in that the perception is created that the professional nurses cannot share their ideas with the operational managers. This finding could indicate that there is a breakdown in trust between the professional nurses and the operational managers. Trust, as mentioned in various sections of this study, is a vital element in any relationship between the supervisor and the supervised.

#### 6.4.2.4 Scores for items C50-54 (Q40–44): operational manager: Neutrality-Empathy Continuum

The scores for items C50-54 (Q40–44) are displayed in Table 6.20 on the operational manager: Neutrality-Empathy Continuum.

TABLE 6.20: SCORES FOR ITEMS C50-54: OPERATIONAL MANAGER: NEUTRALITY-EMPATY CONTINUUM (N = 270)

| Operational manager: Neutrality-Empathy Continuum |     |                                    | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|---|-----|------------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|   |     |                                    | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C50   | Q40 | Respects the feelings of others    | 6                           | 2.22% | 173                                | 64.07% | 91                                  | 33.70% | 270           | 100.00% |
| C51   | Q41 | Uses affectionate language         | 11                          | 4.07% | 97                                 | 35.93% | 162                                 | 60.00% | 270           | 100.00% |
| C52   | Q42 | Indifferent to feelings of others  | 12                          | 4.44% | 81                                 | 30.00% | 177                                 | 65.56% | 270           | 100.00% |
| C53   | Q43 | Shows interest in others' problems | 13                          | 4.81% | 49                                 | 18.15% | 208                                 | 77.04% | 270           | 100.00% |
| C54   | Q44 | Becomes involved in conflicts      | 11                          | 4.07% | 134                                | 49.63% | 125                                 | 46.30% | 270           | 100.00% |

#### Question 40

In the operational manager: Neutrality-Empathy Continuum (see Table 6.20) for item C50 (Q40), the scores indicate a more defensive orientation. In this instance only 91 (33.70%) of the respondents perceived that operational managers in charge of their wards/units always respect the feelings of others: a supportive communication behaviour perspective. By contrast, 173 (64.07%) of the respondents indicated that the operational managers in charge of their wards/units never respect the feelings of others: a defensive communication behaviour orientation. Respect is a core interpersonal value that should be reciprocal. In the event that respect is absent between the nurses in a nursing unit, conflict will be unavoidable.

According to McFarlane (2010:10), when people value communication, it means that they also value human feelings to such an extent that they will “take time and effort to communicate in ways which bring optimum results in understanding and agreement”. When communication is devalued, the level of understanding and agreement will suffer as a direct consequence. Thus, if communication is to be classed as effective, motivation, respect, a positive mindset and the tolerance to address differences must be inherent to such communication.

#### Question 44

In the operational manager: Neutrality-Empathy Continuum (see Table 6.20) for item C54 (Q44) the scores indicate a more defensive orientation. In this instance only 125 (46.30%) of the respondents perceived that operational managers in charge of their wards/units never become involved in conflict: a supportive communication behaviour.

By contrast, 134 (49.63%) of the respondents indicated that the operational managers in charge of their wards/units always become involved in conflict: a defensive communication behaviour orientation. Often it is the task of the operational manager to intervene in interdepartmental conflict as a mediator or peacekeeper (Arnold & Underman Boggs 2011:457); however, when operational managers become personally involved in conflict it could spell potential disaster for the harmonious functioning of the nursing unit.

#### 6.4.2.5 Scores for items C61-66 (Q51–56): operational manager: Superiority-Equality Continuum

The scores for items C61-66 (Q51–56) are displayed in Table 6.21 on the operational manager: Superiority-Equality Continuum.

TABLE 6.21: SCORES FOR ITEMS C61-66: OPERATIONAL MANAGER: SUPERIORITY-EQUALITY CONTINUUM (N = 270)

| Operational manager: Superiority-Equality Continuum |     |                                       | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|---|-----|---------------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|   |     |                                       | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C61   | Q51 | Emphasises status to others           | 5                           | 1.85% | 169                                | 62.59% | 96                                  | 35.56% | 270           | 100.00% |
| C62   | Q52 | Makes others feel inadequate          | 9                           | 3.33% | 146                                | 54.07% | 115                                 | 42.59% | 270           | 100.00% |
| C63   | Q53 | Welcomes feedback and help            | 12                          | 4.44% | 38                                 | 14.07% | 220                                 | 81.48% | 270           | 100.00% |
| C64   | Q54 | Displays open attitude to other views | 12                          | 4.44% | 32                                 | 11.85% | 226                                 | 83.70% | 270           | 100.00% |
| C65   | Q55 | Respects the positions of others      | 10                          | 3.70% | 119                                | 44.07% | 141                                 | 52.22% | 270           | 100.00% |
| C66   | Q56 | Treats others as inferior to self     | 12                          | 4.44% | 78                                 | 28.89% | 180                                 | 66.67% | 270           | 100.00% |

### **Question 51**

In the operational manager: Superiority-Equality Continuum (see Table 6.21) for item C61 (Q51) the scores indicate a more defensive orientation. In this instance only 96 (35.56%) of the respondents perceived that operational managers in charge of their wards/units never emphasise their status to others: a supportive communication behaviour perspective. By contrast, 169 (62.59%) of the respondents indicated that the operational managers in charge of their wards/units always emphasise their status to others: a defensive communication behaviour orientation.

The position of 'Operational Manager' does hold some form of status in the nursing unit. The operational managers form the link, at middle management level, between nurse managers at top nursing management level and the professional nurses at functional level in the wards/units. This link is very important in a nursing unit, as the nurse managers have to be informed about all situations at operational level in order to take top managerial decisions. A break in this vital link could lead to a breakdown in communication through all the levels of the nursing hierarchy (Wagner 2013:111).

### **Question 52**

In the operational manager: Superiority-Equality Continuum (see Table 6.21) for item C62 (Q52), the scores indicate a more defensive orientation. In this instance only 115 (42.59%) of the respondents perceived that the operational managers in charge of their wards/units never make others feel inadequate: a supportive communication behaviour perspective. By contrast, 146 (54.07%) of the respondents indicated that the operational managers in charge of their wards/units always make other feel inadequate: a defensive communication behaviour orientation.

The operational managers in charge of nursing units are mandated to empower their subordinates in the nursing units with knowledge and skills. This can only happen when operational managers themselves feel self-empowered enough to empower others. Unfortunately, self-empowerment often leads to self-entitlement and a heightened emphasis on status. When this is the case in a nursing unit, the staff perceive the operational manager as too important to take an interest in their problems (with regard to professional and personal challenges). The self-entitled attitude of the operational manager could make the team members feel unimportant and inadequate and therefore they will no longer seek the assistance, nor require the input, of the operational manager.

### 6.4.2.6 Scores for items C73-78 (Q63-68): operational manager: Certainty-Provisionalism Continuum

The scores for items C73-78 (Q63–68) are displayed in Table 6.22 on the operational manager: Certainty-Provisionalism Continuum.

TABLE 6.22: SCORES FOR ITEMS C73-78: OPERATIONAL MANAGER: CERTAINTY-PROVISIONALISM CONTINUUM (N = 270)

| Operational manager: Certainty-Provisionalism Continuum |     |                                  | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|---|-----|----------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|   |     |                                  | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C73   | Q63 | Have to always be right          | 5                           | 1.85% | 169                                | 62.59% | 96                                  | 35.56% | 270           | 100.00% |
| C74   | Q64 | Rejects ideas and opposing views | 12                          | 4.44% | 74                                 | 27.41% | 184                                 | 68.15% | 270           | 100.00% |
| C75   | Q65 | Willing to adapt own ideas       | 11                          | 4.07% | 89                                 | 32.96% | 170                                 | 62.96% | 270           | 100.00% |
| C76   | Q66 | Adopts a flexible attitude       | 6                           | 2.22% | 164                                | 60.74% | 100                                 | 37.04% | 270           | 100.00% |
| C77   | Q67 | Takes sides on issues            | 5                           | 1.85% | 188                                | 69.63% | 77                                  | 28.52% | 270           | 100.00% |
| C78   | Q68 | Adopts a doubting attitude       | 12                          | 4.44% | 69                                 | 25.56% | 189                                 | 70.00% | 270           | 100.00% |

#### Question 63

In the operational manager: Certainty-Provisionalism Continuum (Table 6.22) for item C73 (Q63), the scores indicate a more defensive orientation. In this instance only 96 (35.56%) of the respondents perceived that the operational managers in charge of their wards/units never feel that they are right in all conversations: a supportive communication behaviour perspective. By contrast, 169 (62.59%) of the respondents indicated that the operational managers in charge of their wards/units always feel that they are right in all conversations: a defensive communication behaviour orientation. Being always right means that others are always wrong, and in a nursing unit this could be a potentially reckless and irresponsible attitude.

#### Question 66

In the operational manager: Certainty-Provisionalism Continuum (Table 6.22) for item C76 (Q66), the scores indicate a more defensive orientation. In this instance only 100 (37.04%) of the respondents perceived that the operational managers in charge of their wards/units always adopt a flexible attitude in conversations: a supportive communication behaviour perspective. By contrast, 164 (60.74%) of the respondents indicated that the operational managers in charge of their wards/units never adopt a flexible attitude in conversations: a defensive communication behaviour orientation. Refusing to adopt a flexible attitude means that the operational managers are rigid in the way they converse with others in the nursing unit.

The dynamic nature of a nursing unit requires flexibility in all spheres, as situations can change from moment to moment and people react differently to different situations.

**Question 67**

In the operational manager: Certainty-Provisionalism Continuum (Table 6.22) for item C77 (Q67), the score indicates a more defensive orientation. In this instance only 77 (28.52%) of the respondents perceived that the operational managers in charge of their wards/units never take sides on issues: a supportive communication behaviour perspective. By contrast, 188 (69.63%) of the respondents indicated that the operational managers in charge of their wards/units always take sides on issues: a defensive communication behaviour orientation.

The rationale for “siding” behaviour is unknown; however, many factors could potentially play a role. Some of the factors could include strained interpersonal relations between certain members of the team, racial and cultural friction, or siding with team members of the same age (generational groups). Whatever the reasons may be, siding with specific parties on issues involving all role-players is not a beneficial practice.

**6.4.2.7 Score for item C80 (Q70): operational manager: General**

The score for item C80 (Q70) is displayed in Table 6.23 as operational manager: General.

**TABLE 6.23: SCORE FOR ITEM C80: OPERATIONAL MANAGER: GENERAL (N = 270)**

| Operational manager: General |     |                                 | Neutral responses (level 4) |       | Defensive responses (levels 1 – 3) |        | Supportive responses (levels 5 – 7) |        | All responses |         |
|------------------------------|-----|---------------------------------|-----------------------------|-------|------------------------------------|--------|-------------------------------------|--------|---------------|---------|
|                              |     |                                 | N                           | %     | N                                  | %      | N                                   | %      | N             | %       |
| C80                          | Q70 | Overall communication behaviour | 9                           | 3.35% | 104                                | 38.29% | 157                                 | 58.36% | 270           | 100.00% |

**Question 70**

In operational manager: General (see Table 6.23) for item C 80 (Q70), the score indicates a supportive communication behaviour orientation. In this instance 157 (58.36%) of the respondents perceived that the overall communication behaviour of the operational managers in charge of their wards/units is supportive: a supportive communication behaviour perspective. By contrast, 104 (38.29%) of the respondents indicated that the overall communication behaviour of the operational managers in charge of their wards/units is defensive: a defensive communication behaviour orientation. This finding is in line with the overall score for all the operational manager constructs.

### 6.4.2.8 Combined mean scores of responses per operational manager continuums

In this section the combination of the mean scores of the respondents' perception of operational manager communication behaviour (operational manager) according to the six Gibb's conceptual continuums is discussed. The combined mean scores for the operational manager conceptual continuum are displayed in Table 6.24.

**TABLE 6.24: MEAN SCORES OF RESPONSES PER CONCEPTUAL CONTINUUM (N = 270)**

| Gibb's conceptual continuums for Professional nurses and Operational managers |              | N   | Mean | Standard Deviation |
|---|--------------|-----|------|--------------------|
| OM: Evaluation-Description  | Q6-10 score  | 270 | 4.63 | 1.36               |
| OM: Control-Problem Orientation   | Q17-22 score | 270 | 4.61 | 1.55               |
| OM: Strategy-Spontaneity  | Q29-34 score | 270 | 4.18 | 1.70               |
| OM: Neutrality-Empathy  | Q40-44 score | 270 | 4.37 | 1.66               |
| OM: Superiority-Equality  | Q51-56 score | 270 | 4.49 | 1.53               |
| OM: Certainty-Provisionalism  | Q63-68 score | 270 | 4.12 | 1.66               |
| Valid N   |              | 270 |      |                    |

OM = OPERATIONAL MANAGER

Regarding the respondents' perception of operational manager communication behaviour, displayed in Table 6.24, the respondents selected a more defensive communication climate focus, although the overall communication behaviour focus was still supportive in nature. The operational manager communication behaviour constructs that delivered the lowest mean scores were the operational manager: Certainty-Provisionalism continuum (mean score = 4.12) and the operational manager: Strategy-Spontaneity continuum (mean score = 4.18).

The operational manager communication behaviour construct that delivered the highest mean score was found in the operational manager: Evaluation-Description continuum (mean score = 4.63). A supportive communication climate orientation was also indicated during the comparison of the means of the professional nurse constructs with the means of the corresponding operational manager constructs. However, the largest differences between the professional nurse and operational manager scores were found in the Certainty-Provisionalism continuum, where the professional nurse mean score of 4.89 (see Table 6.16) differed significantly from the operational manager mean score of 4.12 (see Table 6.24), while the smallest mean difference was found in the Superiority-Equality continuum, where the professional nurse mean score was 4.55 (see Table 6.16) and the operational manager mean score was 4.49 (see Table 6.24).

This result indicates that the respondents prefer a supportive communication climate overall. Fleischer, Berg, Zimmermann, Wüste and Behrens (2009:347) and Lein and Wills (2007:215-220) support the predominantly supportive communication orientation of the respondents, by stating that professional nurses in general seem to use different communication strategies, such as supportive client communication, with different recipients.

Regarding all six conceptual continuums, although the overall communication behaviour orientation is supportive, it is noteworthy that the “professional nurse” constructs delivered higher mean scores than the “operational manager” constructs. This finding indicates that respondents generally had a more supportive perception of their own communication behaviour and a less supportive perception of the communication behaviour of their operational managers. The respondents perceived operational managers as displaying less supportive communication behaviour, specifically with regard to the operational manager: Certainty-Provisionalism and operational manager: Strategy-Spontaneity continuums.

#### **6.4.4 Research question 3**

***Research question 3: How do specific factors, such as age, tenure (period in hospital), gender, language, the institution (hospital) and type of unit/ward, influence the respondents’ communication behaviour and the respondents’ perceptions of the operational managers’ communication behaviour with regard to the six Gibbs’ conceptual continuums?***

Each of the specific factors, namely age, tenure (period in hospital), gender, language, institution (public hospital) and type of units/wards, was tested separately. The one-way ANOVA, F-test and t-test tests were conducted to establish significant differences between and within the different groups of variables. The individual t-test results are attached as an annexure to this study (see Annexure L). In the cases where significant differences were found, Tukey-Kramer tests were performed.

The One-way ANOVA test is used to determine the mean differences between two or more groups by comparing variability between groups with variability within groups (Burns & Grove 2009:505; Polit & Beck 2012:416-417).

The F-test (F-ratio) is a statistic used to test the ANOVA based on comparison of the variation *between* groups with the variation *within* groups. The F-test will produce a probability (p-value). This p-value, if calculated and found to be smaller than 0.05, will indicate statistical significance at a 95% level of confidence. The F-test will serve as test of statistical significance for this study. To enhance the results of the F-tests, the effect sizes of the differences (Cohen's f) are also indicated. The effect size (Cohen's f), in statistics, represents, according to Kelly and Preacher (2012:137), a "quantitative reflection" of the strength of a phenomenon, in an effort to deal with an important issue.

The Tukey-Kramer test is a statistical test used to establish exactly where significant differences between and within the different groups of variables are (Burns & Grove 2009:505). A positive value will indicate that there is a significant difference between two pairs of means and a negative value will indicate that there is no significant difference between two pairs of means.

#### **6.4.4.1 Factor 1: Respondents' ages, pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs**

A one-way ANOVA was performed to test this factor: thus the differences between the respondents' ages pertaining to their communication behaviour and their perceptions of operational manager communication behaviour, in terms of the six conceptual continuums (constructs). This test was applicable, as different age groups were being investigated. The results are displayed in Table 6.25 (one-way ANOVA statistics), and Table 6.26 (F-test statistics).



**TABLE 6.25: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' AGES AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)\***

|   | Age         | N  | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|---|-------------|----|---------|----------------|------------|-------------------------------|-------------------------------|
| <b>PN: Evaluation-Description Q1- 5</b>       | 20-30 years | 44 | 4.84091 | 1.241589       | 0.20327    | 4.4407                        | 5.2411                        |
|   | 31-40 years | 75 | 4.78933 | 1.447792       | 0.15569    | 4.4828                        | 5.0959                        |
|   | 41-50 years | 89 | 4.88764 | 1.281673       | 0.14293    | 4.6062                        | 5.1691                        |
|   | 51-60 years | 52 | 4.96538 | 1.403481       | 0.18698    | 4.5972                        | 5.3335                        |
|   | 61+ years   | 10 | 5.32000 | 1.307075       | 0.42639    | 4.4805                        | 6.1595                        |
| <b>PN: Control-Problem Orientation Q11-16</b> | 20-30 years | 44 | 5.19318 | 1.170781       | 0.17666    | 4.8453                        | 5.5410                        |
|   | 31-40 years | 75 | 5.07778 | 1.243703       | 0.13531    | 4.8114                        | 5.3442                        |
|   | 41-50 years | 89 | 5.02809 | 1.031461       | 0.12421    | 4.7835                        | 5.2727                        |
|   | 51-60 years | 52 | 5.12821 | 1.289566       | 0.16250    | 4.8082                        | 5.4482                        |
|   | 61+ years   | 10 | 5.71667 | 1.157504       | 0.37057    | 4.9870                        | 6.4463                        |
| <b>PN: Strategy-Spontaneity Q23-28</b>        | 20-30 years | 44 | 5.01515 | 1.581065       | 0.23954    | 4.5435                        | 5.4868                        |
|   | 31-40 years | 75 | 4.46667 | 1.851466       | 0.18347    | 4.1054                        | 4.8279                        |
|   | 41-50 years | 89 | 4.55993 | 1.412929       | 0.16842    | 4.2283                        | 4.8915                        |
|   | 51-60 years | 52 | 4.73077 | 1.501326       | 0.22034    | 4.2969                        | 5.1646                        |
|   | 61+ years   | 10 | 5.10000 | 1.383768       | 0.50246    | 4.1107                        | 6.0893                        |
| <b>PN: Neutrality-Empathy Q35-39</b>          | 20-30 years | 44 | 5.15455 | 1.577672       | 0.22964    | 4.7024                        | 5.6067                        |
|   | 31-40 years | 75 | 4.60533 | 1.724223       | 0.17589    | 4.2590                        | 4.9516                        |
|   | 41-50 years | 89 | 4.48989 | 1.362488       | 0.16146    | 4.1720                        | 4.8078                        |
|   | 51-60 years | 52 | 4.77692 | 1.458796       | 0.21123    | 4.3610                        | 5.1928                        |
|   | 61+ years   | 10 | 5.30000 | 1.330831       | 0.48169    | 4.3516                        | 6.2484                        |
| <b>PN: Superiority-Equality Q45-50</b>        | 20-30 years | 44 | 4.87500 | 1.577509       | 0.23168    | 4.4188                        | 5.3312                        |
|   | 31-40 years | 75 | 4.46667 | 1.711996       | 0.17745    | 4.1173                        | 4.8161                        |
|   | 41-50 years | 89 | 4.36142 | 1.377883       | 0.16290    | 4.0407                        | 4.6822                        |
|   | 51-60 years | 52 | 4.55769 | 1.476351       | 0.21311    | 4.1381                        | 4.9773                        |
|   | 61+ years   | 10 | 5.36667 | 1.623135       | 0.48597    | 4.4098                        | 6.3235                        |
| <b>PN: Certainty-Provisionalism Q57-62</b>    | 20-30 years | 44 | 5.23106 | 1.486901       | 0.21790    | 4.8020                        | 5.6601                        |
|   | 31-40 years | 75 | 4.88444 | 1.617976       | 0.16690    | 4.5558                        | 5.2131                        |
|   | 41-50 years | 89 | 4.64981 | 1.366779       | 0.15321    | 4.3481                        | 4.9515                        |
|   | 51-60 years | 52 | 4.90705 | 1.251758       | 0.20044    | 4.5124                        | 5.3017                        |
|   | 61+ years   | 10 | 5.48333 | 1.510151       | 0.45707    | 4.5834                        | 6.3833                        |
| <b>OM: Evaluation-Description Q6-10</b>       | 20-30 years | 44 | 4.86364 | 1.377408       | 0.20468    | 4.4606                        | 5.2666                        |
|   | 31-40 years | 75 | 4.49333 | 1.529294       | 0.15677    | 4.1847                        | 4.8020                        |
|   | 41-50 years | 89 | 4.52809 | 1.177149       | 0.14391    | 4.2447                        | 4.8115                        |
|   | 51-60 years | 52 | 4.66154 | 1.428307       | 0.18828    | 4.2908                        | 5.0322                        |
|   | 61+ years   | 10 | 5.26000 | 0.933571       | 0.42934    | 4.4147                        | 6.1053                        |
| <b>OM: Control-Problem Orientation Q17-22</b> | 20-30 years | 44 | 4.88636 | 1.529965       | 0.23285    | 4.4279                        | 5.3448                        |
|   | 31-40 years | 75 | 4.50444 | 1.792748       | 0.17835    | 4.1533                        | 4.8556                        |
|   | 41-50 years | 89 | 4.46067 | 1.281921       | 0.16372    | 4.1383                        | 4.7830                        |
|   | 51-60 years | 52 | 4.65064 | 1.602102       | 0.21419    | 4.2289                        | 5.0724                        |
|   | 61+ years   | 10 | 5.26667 | 1.421180       | 0.48842    | 4.3050                        | 6.2284                        |
| <b>OM: Strategy-Spontaneity Q29-34</b>        | 20-30 years | 44 | 4.46212 | 1.653383       | 0.25596    | 3.9582                        | 4.9661                        |
|   | 31-40 years | 75 | 4.00222 | 1.868518       | 0.19605    | 3.6162                        | 4.3882                        |
|   | 41-50 years | 89 | 4.03371 | 1.596473       | 0.17997    | 3.6794                        | 4.3881                        |
|   | 51-60 years | 52 | 4.29487 | 1.671436       | 0.23545    | 3.8313                        | 4.7585                        |
|   | 61+ years   | 10 | 5.00000 | 1.535586       | 0.53690    | 3.9429                        | 6.0571                        |
| <b>OM: Neutrality-Empathy Q40-44</b>          | 20-30 years | 44 | 4.69091 | 1.713668       | 0.24943    | 4.1998                        | 5.1820                        |
|   | 31-40 years | 75 | 4.10400 | 1.806104       | 0.19105    | 3.7278                        | 4.4802                        |
|   | 41-50 years | 89 | 4.29213 | 1.529723       | 0.17538    | 3.9468                        | 4.6375                        |
|   | 51-60 years | 52 | 4.46923 | 1.582197       | 0.22944    | 4.0175                        | 4.9210                        |
|   | 61+ years   | 10 | 5.12000 | 1.638970       | 0.52321    | 4.0898                        | 6.1502                        |
| <b>OM: Superiority-Equality Q51-56</b>        | 20-30 years | 44 | 4.88258 | 1.632035       | 0.22806    | 4.4335                        | 5.3316                        |
|   | 31-40 years | 75 | 4.43778 | 1.610256       | 0.17468    | 4.0938                        | 4.7817                        |
|   | 41-50 years | 89 | 4.23034 | 1.393869       | 0.16035    | 3.9146                        | 4.5461                        |
|   | 51-60 years | 52 | 4.51282 | 1.459641       | 0.20978    | 4.0998                        | 4.9259                        |
|   | 61+ years   | 10 | 5.31667 | 1.506058       | 0.47838    | 4.3748                        | 6.2586                        |
| <b>OM: Certainty-Provisionalism Q63-68</b>    | 20-30 years | 44 | 4.45455 | 1.663316       | 0.24968    | 3.9629                        | 4.9462                        |
|   | 31-40 years | 75 | 4.11333 | 1.763230       | 0.19124    | 3.7368                        | 4.4899                        |
|   | 41-50 years | 89 | 3.85581 | 1.524876       | 0.17556    | 3.5101                        | 4.2015                        |
|   | 51-60 years | 52 | 4.13141 | 1.648376       | 0.22967    | 3.6792                        | 4.5836                        |
|   | 61+ years   | 10 | 4.90000 | 1.962928       | 0.52374    | 3.8688                        | 5.9312                        |

PN = Professional nurse

OM = Operational manager

The findings displayed in Table 6.25 indicate that all but one of the age groups in the tested constructs (between-group testing) delivered a mean score of above 4.0, in relation to the ages of the respondents: 20 to 30 years, 31 to 40 years, 41 to 50 years, 51 to 60 years and 61 and more years. Only the operational manager: Certainty-Provisionalism continuum delivered a mean score of 3.86 for the age group 41 to 50 years.

Noteworthy is that when the different age groups were compared with each other (within groups) in the constructs, some of the age groups delivered different scores. The age group 61 and more years consistently delivered a higher mean score than the mean scores of the other age groups, throughout all the constructs. By contrast, the three middle age groups (31 to 40 years, 41 to 50 years and 51 to 60 years) consistently delivered lower mean scores than the two outlying age groups, namely 20 to 30 years and 61 and more years, throughout all of the tested constructs.

From this finding it does seem as though there are small differences between the age groups of respondents pertaining to their communication behaviour, and their perceptions of operational manager communication behaviour, in terms of the six conceptual continuums.

Although these differences between the age groups seem very small, further calculations, the F statistic, were performed as part of the ANOVA, to determine whether the differences in the mean scores of the respondents' ages were significant (Burns & Grove 2009:505; Polit & Beck 2012:417).

The F-test results, as displayed in Table 6.26, revealed that the p-value was above 0.05 for all six of the conceptual constructs. No statistically significant differences were found between respondents' ages pertaining to their communication behaviour and perception of their operational manager's communication behaviour. The Cohen's f effect size showed that all constructs ranged between a small (0.1) to medium (0.25). Based on these results, no further post-hoc analysis was performed.

**TABLE 6.26: F-TEST STATISTICS OF RESPONDENTS' AGES AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)\***

|  |          | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's f |
|--|----------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description Q1- 5       | Age      | 4   | 3.00037        | 0.75009     | 0.4126 | 0.7995   | 0.08      |
|  | Error    | 265 | 481.78793      | 1.81807     |        |          |           |
|  | C. Total | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem Orientation Q11-16 | Age      | 4   | 4.67366        | 1.16841     | 0.8509 | 0.4941   | 0.11      |
|  | Error    | 265 | 363.89877      | 1.37320     |        |          |           |
|  | C. Total | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity Q23-28        | Age      | 4   | 11.44060       | 2.86015     | 1.1329 | 0.3413   | 0.13      |
|  | Error    | 265 | 669.02329      | 2.52462     |        |          |           |
|  | C. Total | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy Q35-39          | Age      | 4   | 17.53450       | 4.38363     | 1.8893 | 0.1126   | 0.17      |
|  | Error    | 265 | 614.86016      | 2.32023     |        |          |           |
|  | C. Total | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality Q45-50        | Age      | 4   | 15.00570       | 3.75142     | 1.5885 | 0.1777   | 0.15      |
|  | Error    | 265 | 625.83587      | 2.36164     |        |          |           |
|  | C. Total | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism Q57-62    | Age      | 4   | 13.79046       | 3.44761     | 1.6503 | 0.1620   | 0.16      |
|  | Error    | 265 | 553.61654      | 2.08912     |        |          |           |
|  | C. Total | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description Q6-10       | Age      | 4   | 8.74318        | 2.18580     | 1.1858 | 0.3174   | 0.13      |
|  | Error    | 265 | 488.47534      | 1.84330     |        |          |           |
|  | C. Total | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem Orientation Q17-22 | Age      | 4   | 10.57827       | 2.64457     | 1.1086 | 0.3529   | 0.13      |
|  | Error    | 265 | 632.17934      | 2.38558     |        |          |           |
|  | C. Total | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity Q29-34        | Age      | 4   | 15.18712       | 3.79678     | 1.3171 | 0.2639   | 0.14      |
|  | Error    | 265 | 763.89734      | 2.88263     |        |          |           |
|  | C. Total | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy Q40-44          | Age      | 4   | 16.51454       | 4.12863     | 1.5082 | 0.2001   | 0.15      |
|  | Error    | 265 | 725.43643      | 2.73750     |        |          |           |
|  | C. Total | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality Q51-56        | Age      | 4   | 19.84696       | 4.96174     | 2.1681 | 0.0729   | 0.18      |
|  | Error    | 265 | 606.45304      | 2.28850     |        |          |           |
|  | C. Total | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism Q63-68    | Age      | 4   | 17.22771       | 4.30693     | 1.5701 | 0.1826   | 0.15      |
|  | Error    | 265 | 726.90284      | 2.74303     |        |          |           |
|  | C. Total | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = Professional nurse

OM = Operational manager

#### **6.4.4.2 Factor 2: Respondents' tenure (periods in hospitals), pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs**

A one-way ANOVA was performed to test factor 2, the differences between the respondents' tenure (period in hospitals) pertaining to their communication behaviour, and their perceptions of operational manager communication behaviour, in terms of the six constructs. This test was applicable, as variations in tenure (period in hospitals) were being investigated. The results are displayed in Table 6.27 (one-way ANOVA statistics) and Table 6.28 (F-test statistics).

**TABLE 6.27: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' TENURE AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)\***

|   | Tenures          | N   | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|---|------------------|-----|---------|----------------|------------|-------------------------------|-------------------------------|
| <b>PN: Evaluation-Description Q1- 5</b>       | 1 – 3 years      | 8   | 5.17500 | 1.17807        | 0.41651    | 4.1901                        | 6.1599                        |
|   | 4 – 6 years      | 129 | 4.91008 | 1.39574        | 0.12289    | 4.6669                        | 5.1532                        |
|   | 7 – 9 years      | 92  | 4.88478 | 1.33070        | 0.13873    | 4.6092                        | 5.1604                        |
|   | 10 or more years | 41  | 4.74146 | 1.25479        | 0.19596    | 4.3454                        | 5.1375                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Control-Problem Orientation Q11-16</b> | 1 – 3 years      | 8   | 5.31250 | 1.25811        | 0.44481    | 4.2607                        | 6.3643                        |
|   | 4 – 6 years      | 129 | 5.10465 | 1.15227        | 0.10145    | 4.9039                        | 5.3054                        |
|   | 7 – 9 years      | 92  | 5.09058 | 1.19303        | 0.12438    | 4.8435                        | 5.3376                        |
|   | 10 or more years | 41  | 5.15447 | 1.19976        | 0.18737    | 4.7758                        | 5.5332                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Strategy-Spontaneity Q23-28</b>        | 1 – 3 years      | 8   | 5.08333 | 1.94365        | 0.68718    | 3.4584                        | 6.7083                        |
|   | 4 – 6 years      | 129 | 4.58398 | 1.55570        | 0.13697    | 4.3130                        | 4.8550                        |
|   | 7 – 9 years      | 92  | 4.73913 | 1.59178        | 0.16595    | 4.4095                        | 5.0688                        |
|   | 10 or more years | 41  | 4.64634 | 1.66508        | 0.26004    | 4.1208                        | 5.1719                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Neutrality-Empathy Q35-39</b>          | 1 – 3 years      | 8   | 5.27500 | 1.72689        | 0.61055    | 3.8313                        | 6.7187                        |
|   | 4 – 6 years      | 129 | 4.65581 | 1.50623        | 0.13262    | 4.3934                        | 4.9182                        |
|   | 7 – 9 years      | 92  | 4.77391 | 1.59978        | 0.16679    | 4.4426                        | 5.1052                        |
|   | 10 or more years | 41  | 4.66341 | 1.45632        | 0.22744    | 4.2037                        | 5.1231                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Superiority-Equality Q45-50</b>        | 1 – 3 years      | 8   | 5.22917 | 1.54544        | 0.54640    | 3.9371                        | 6.5212                        |
|   | 4 – 6 years      | 129 | 4.49742 | 1.52325        | 0.13412    | 4.2320                        | 4.7628                        |
|   | 7 – 9 years      | 92  | 4.62681 | 1.56822        | 0.16350    | 4.3020                        | 4.9516                        |
|   | 10 or more years | 41  | 4.40650 | 1.56438        | 0.24432    | 3.9127                        | 4.9003                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Certainty-Provisionalism Q57-62</b>    | 1 – 3 years      | 8   | 5.39583 | 1.55823        | 0.55092    | 4.0931                        | 6.6985                        |
|   | 4 – 6 years      | 129 | 4.82171 | 1.44009        | 0.12679    | 4.5708                        | 5.0726                        |
|   | 7 – 9 years      | 92  | 5.00181 | 1.52102        | 0.15858    | 4.6868                        | 5.3168                        |
|   | 10 or more years | 41  | 4.75610 | 1.32188        | 0.20644    | 4.3389                        | 5.1733                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Evaluation-Description Q6-10</b>       | 1 – 3 years      | 8   | 5.20000 | 1.14143        | 0.40356    | 4.2457                        | 6.1543                        |
|   | 4 – 6 years      | 129 | 4.66667 | 1.38752        | 0.12216    | 4.4249                        | 4.9084                        |
|   | 7 – 9 years      | 92  | 4.59130 | 1.37030        | 0.14286    | 4.3075                        | 4.8751                        |
|   | 10 or more years | 41  | 4.46341 | 1.29185        | 0.20175    | 4.0557                        | 4.8712                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Control-Problem Orientation Q17-22</b> | 1 – 3 years      | 8   | 4.83333 | 1.88562        | 0.66667    | 3.2569                        | 6.4097                        |
|   | 4 – 6 years      | 129 | 4.49612 | 1.51947        | 0.13378    | 4.2314                        | 4.7608                        |
|   | 7 – 9 years      | 92  | 4.75543 | 1.51114        | 0.15755    | 4.4425                        | 5.0684                        |
|   | 10 or more years | 41  | 4.58943 | 1.66212        | 0.25958    | 4.0648                        | 5.1141                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Strategy-Spontaneity Q29-34</b>        | 1 – 3 years      | 8   | 4.56250 | 1.86006        | 0.65763    | 3.0075                        | 6.1175                        |
|   | 4 – 6 years      | 129 | 4.05297 | 1.68814        | 0.14863    | 3.7589                        | 4.3471                        |
|   | 7 – 9 years      | 92  | 4.32790 | 1.70889        | 0.17816    | 3.9740                        | 4.6818                        |
|   | 10 or more years | 41  | 4.17886 | 1.72538        | 0.26946    | 3.6343                        | 4.7235                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Neutrality-Empathy Q40-44</b>          | 1 – 3 years      | 8   | 4.82500 | 1.93741        | 0.68498    | 3.2053                        | 6.4447                        |
|   | 4 – 6 years      | 129 | 4.28372 | 1.62148        | 0.14276    | 4.0012                        | 4.5662                        |
|   | 7 – 9 years      | 92  | 4.40870 | 1.70762        | 0.17803    | 4.0551                        | 4.7623                        |
|   | 10 or more years | 41  | 4.46341 | 1.66339        | 0.25978    | 3.9384                        | 4.9884                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Superiority-Equality Q51-56</b>        | 1 – 3 years      | 8   | 5.08333 | 1.84520        | 0.65238    | 3.5407                        | 6.6260                        |
|   | 4 – 6 years      | 129 | 4.43023 | 1.50053        | 0.13211    | 4.1688                        | 4.6916                        |
|   | 7 – 9 years      | 92  | 4.54710 | 1.57753        | 0.16447    | 4.2204                        | 4.8738                        |
|   | 10 or more years | 41  | 4.42683 | 1.44964        | 0.22640    | 3.9693                        | 4.8844                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Certainty-Provisionalism Q63-68</b>    | 1 – 3 years      | 8   | 4.56250 | 1.73648        | 0.61394    | 3.1108                        | 6.0142                        |
|   | 4 – 6 years      | 129 | 4.09173 | 1.62886        | 0.14341    | 3.8080                        | 4.3755                        |
|   | 7 – 9 years      | 92  | 4.19746 | 1.72515        | 0.17986    | 3.8402                        | 4.5547                        |
|   | 10 or more years | 41  | 3.92683 | 1.64952        | 0.25761    | 3.4062                        | 4.4475                        |
|   | Total            | 270 | -       | -              | -          | -                             | -                             |

PN = Professional nurse

OM = Operational manager

The findings as displayed in Table 6.27 indicate that all but one of the 'tenure' groups in the constructs (tested between groups) delivered a mean score of above 4.0, in relation to the time periods of the respondents in hospital: 1 to 3 years, 4 to 6 years, 7 to 9 years, and 10 or more years. Only the operational manager: Certainty-Provisionalism continuum delivered a mean score of 3.93 for the tenure group of 10 and more years.

Noteworthy is that when the different 'tenure' groups are compared (tested within groups), some tenure groups delivered different scores. The 'tenure' group 1 to 3 years consistently delivered a higher mean score than the mean scores of the other 'tenure' groups, throughout all the constructs. By contrast, the longest of the 'tenure' group (10 and more years) consistently delivered lower mean scores than the other 'tenure' groups, throughout all of the tested constructs.

From this finding it seems that there are small differences between the 'tenure' groups of respondents pertaining to their communication behaviour, and their perception of operational manager communication behaviour, in terms of the six constructs.

Although the differences between the 'tenure' groups of respondents seem very small, the F statistic was also calculated as part of the ANOVA to determine whether the differences in the mean scores of the respondents' tenure in the hospital were significant (Burns & Grove 2009:505; Polit & Beck 2012:417). The results for the F statistic are displayed in Table 6.28.

**TABLE 6.28: F-TEST STATISTICS OF RESPONDENTS' TENURE AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)\***

|  |          | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's F |
|--|----------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description Q1-5        | Tenure   | 3   | 1.59819        | 0.53273     | 0.2933 | 0.8302   | 0.06      |
|  | Error    | 266 | 483.19011      | 1.81650     |        |          |           |
|  | C. Total | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem Orientation Q11-16 | Tenure   | 3   | 0.44406        | 0.14802     | 0.1070 | 0.9560   | 0.03      |
|  | Error    | 266 | 368.12836      | 1.38394     |        |          |           |
|  | C. Total | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity Q23-28        | Tenure   | 3   | 2.76258        | 0.92086     | 0.3614 | 0.7809   | 0.06      |
|  | Error    | 266 | 677.70131      | 2.54775     |        |          |           |
|  | C. Total | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy Q35-39          | Tenure   | 3   | 3.38901        | 1.12967     | 0.4777 | 0.6980   | 0.07      |
|  | Error    | 266 | 629.00565      | 2.36468     |        |          |           |
|  | C. Total | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality Q45-50        | Tenure   | 3   | 5.43377        | 1.81126     | 0.7582 | 0.5184   | 0.09      |
|  | Error    | 266 | 635.40780      | 2.38875     |        |          |           |
|  | C. Total | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism Q57-62    | Tenure   | 3   | 4.53390        | 1.51130     | 0.7142 | 0.5443   | 0.09      |
|  | Error    | 266 | 562.87309      | 2.11606     |        |          |           |
|  | C. Total | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description Q6-10       | Tenure   | 3   | 4.04369        | 1.34790     | 0.7270 | 0.5367   | 0.09      |
|  | Error    | 266 | 493.17483      | 1.85404     |        |          |           |
|  | C. Total | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem Orientation Q17-22 | Tenure   | 3   | 4.03463        | 1.34488     | 0.5601 | 0.6418   | 0.08      |
|  | Error    | 266 | 638.72299      | 2.40121     |        |          |           |
|  | C. Total | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity Q29-34        | Tenure   | 3   | 5.26428        | 1.75476     | 0.6032 | 0.6134   | 0.08      |
|  | Error    | 266 | 773.82018      | 2.90910     |        |          |           |
|  | C. Total | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy Q40-44          | Tenure   | 3   | 3.11198        | 1.03733     | 0.3735 | 0.7722   | 0.06      |
|  | Error    | 266 | 738.83898      | 2.77759     |        |          |           |
|  | C. Total | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality Q51-56        | Tenure   | 3   | 3.74041        | 1.24680     | 0.5327 | 0.6602   | 0.08      |
|  | Error    | 266 | 622.55959      | 2.34045     |        |          |           |
|  | C. Total | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism Q63-68    | Tenure   | 3   | 3.74851        | 1.24950     | 0.4489 | 0.7183   | 0.07      |
|  | Error    | 266 | 740.38205      | 2.78339     |        |          |           |
|  | C. Total | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = Professional nurse

OM = Operational manager

The F-test results, as displayed in Table 6.28, revealed that the p-value was above 0.05 for all six of the conceptual continuums; however, small, statistically insignificant differences were found between the tenure groups. The Cohen's f effect size also showed that all constructs were in a small-effect range (below 0.1).

#### **6.4.4.3 Factor 3: Respondents' languages, pertaining to their communication behaviour orientation and perception of operational manager communication behaviour orientation, with regard to the six constructs**

A one-way ANOVA was performed to test factor 3, the differences between the respondents' language groups pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, in terms of the six constructs. This test was applicable, as different language groups were being investigated. The results are displayed in Table 6.29 (one-way ANOVA statistics) and Table 6.30 (F-test statistics).

**TABLE 6.29: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' LANGUAGES AND COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR IN RELATION TO THE SIX CONSTRUCTS (N = 270)\***

|   | Language  | N   | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|---|-----------|-----|---------|----------------|------------|-------------------------------|-------------------------------|
| <b>PN: Evaluation-Description Q1-5</b>        | African   | 177 | 4.84407 | 1.35382        | 0.10176    | 4.6432                        | 5.0449                        |
|   | English   | 54  | 5.00370 | 1.35116        | 0.18387    | 4.6349                        | 5.3725                        |
|   | Afrikaans | 28  | 4.68571 | 1.35365        | 0.25582    | 4.1608                        | 5.2106                        |
|   | Other     | 11  | 5.43636 | 1.02301        | 0.30845    | 4.7491                        | 6.1236                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Control-Problem Orientation Q11-16</b> | African   | 177 | 5.09793 | 1.17239        | 0.08812    | 4.9240                        | 5.2718                        |
|   | English   | 54  | 5.12037 | 1.21288        | 0.16505    | 4.7893                        | 5.4514                        |
|   | Afrikaans | 28  | 4.96429 | 1.13706        | 0.21489    | 4.5234                        | 5.4052                        |
|   | Other     | 11  | 5.71212 | 0.95769        | 0.28875    | 5.0687                        | 6.3555                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Strategy-Spontaneity Q23-28</b>        | African   | 177 | 4.67797 | 1.60792        | 0.12086    | 4.4394                        | 4.9165                        |
|   | English   | 54  | 4.63889 | 1.65428        | 0.22512    | 4.1874                        | 5.0904                        |
|   | Afrikaans | 28  | 4.33333 | 1.50514        | 0.28444    | 3.7497                        | 4.9170                        |
|   | Other     | 11  | 5.33333 | 1.05672        | 0.31861    | 4.6234                        | 6.0433                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Neutrality-Empathy Q35-39</b>          | African   | 177 | 4.75819 | 1.51907        | 0.11418    | 4.5329                        | 4.9835                        |
|   | English   | 54  | 4.71111 | 1.68865        | 0.22707    | 4.2557                        | 5.1666                        |
|   | Afrikaans | 28  | 4.36429 | 1.44228        | 0.27256    | 3.8050                        | 4.9235                        |
|   | Other     | 11  | 4.94545 | 1.34786        | 0.40640    | 4.0399                        | 5.8510                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Superiority-Equality Q45-50</b>        | African   | 177 | 4.55085 | 1.50323        | 0.11299    | 4.3279                        | 4.7738                        |
|   | English   | 54  | 4.54321 | 1.78486        | 0.24289    | 4.0560                        | 5.0304                        |
|   | Afrikaans | 28  | 4.40476 | 1.49445        | 0.28243    | 3.8253                        | 4.9843                        |
|   | Other     | 11  | 4.92424 | 1.08874        | 0.32827    | 4.1928                        | 5.6557                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Certainty-Provisionalism Q57-62</b>    | African   | 177 | 4.87947 | 1.42064        | 0.10678    | 4.6687                        | 5.0902                        |
|   | English   | 54  | 4.88580 | 1.58505        | 0.21570    | 4.4532                        | 5.3184                        |
|   | Afrikaans | 28  | 4.86905 | 1.52169        | 0.28757    | 4.2790                        | 5.4591                        |
|   | Other     | 11  | 5.13636 | 1.25790        | 0.37927    | 4.2913                        | 5.9814                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Evaluation-Description Q6-10</b>       | African   | 177 | 4.58983 | 1.37515        | 0.10336    | 4.3858                        | 4.7938                        |
|   | English   | 54  | 4.72963 | 1.36211        | 0.18536    | 4.3578                        | 5.1014                        |
|   | Afrikaans | 28  | 4.38571 | 1.37483        | 0.25982    | 3.8526                        | 4.9188                        |
|   | Other     | 11  | 5.30909 | 0.86424        | 0.26058    | 4.7285                        | 5.8897                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Control-Problem Orientation 17-22</b>  | African   | 177 | 4.61770 | 1.56169        | 0.11738    | 4.3860                        | 4.8494                        |
|   | English   | 54  | 4.59259 | 1.68003        | 0.22862    | 4.1340                        | 5.0512                        |
|   | Afrikaans | 28  | 4.42262 | 1.39110        | 0.26289    | 3.8832                        | 4.9620                        |
|   | Other     | 11  | 5.01515 | 0.94120        | 0.28378    | 4.3828                        | 5.6475                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Strategy-Spontaneity Q29-34</b>        | African   | 177 | 4.23446 | 1.66793        | 0.12537    | 3.9870                        | 4.4819                        |
|   | English   | 54  | 4.09568 | 1.81295        | 0.24671    | 3.6008                        | 4.5905                        |
|   | Afrikaans | 28  | 3.79762 | 1.76521        | 0.33359    | 3.1131                        | 4.4821                        |
|   | Other     | 11  | 4.71212 | 1.51674        | 0.45731    | 3.6932                        | 5.7311                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Neutrality-Empathy Q40-44</b>          | African   | 177 | 4.37401 | 1.61147        | 0.12113    | 4.1350                        | 4.6131                        |
|   | English   | 54  | 4.41481 | 1.91157        | 0.26013    | 3.8931                        | 4.9366                        |
|   | Afrikaans | 28  | 4.00714 | 1.52848        | 0.28886    | 3.4145                        | 4.5998                        |
|   | Other     | 11  | 5.00000 | 1.41421        | 0.42640    | 4.0499                        | 5.9501                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Superiority-Equality Q51-56</b>        | African   | 177 | 4.49906 | 1.52809        | 0.11486    | 4.2724                        | 4.7257                        |
|   | English   | 54  | 4.49691 | 1.62059        | 0.22053    | 4.0546                        | 4.9392                        |
|   | Afrikaans | 28  | 4.34524 | 1.51463        | 0.28624    | 3.7579                        | 4.9325                        |
|   | Other     | 11  | 4.65152 | 1.15339        | 0.34776    | 3.8767                        | 5.4264                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Certainty-Provisionalism Q63-68</b>    | African   | 177 | 4.14407 | 1.62450        | 0.12211    | 3.9031                        | 4.3850                        |
|   | English   | 54  | 4.16667 | 1.87977        | 0.25580    | 3.6536                        | 4.6797                        |
|   | Afrikaans | 28  | 3.86905 | 1.67489        | 0.31652    | 3.2196                        | 4.5185                        |
|   | Other     | 11  | 4.06061 | 1.20939        | 0.36465    | 3.2481                        | 4.8731                        |
|   | Total     | 270 | -       | -              | -          | -                             | -                             |

PN = Professional nurse

OM = Operational manager

The findings, as displayed in Table 6.29, indicate that all but one of the ‘language’ groups in the constructs (tested between groups) delivered a mean score of above 4.0, in relation to the languages of the respondents: African, English, Afrikaans and Other. Two continuums delivered a low mean score for the ‘Afrikaans’ language group, namely the operational manager: Strategy-Spontaneity continuum (mean score = 3.80) and the operational manager: Certainty-Provisionalism continuum (mean score = 3.87). Testing the language groups within groups, some language groups delivered different scores. The ‘Other’ language group consistently delivered a higher mean score than the mean scores of the rest of the language groups, throughout all the constructs. By contrast, the Afrikaans language group consistently delivered lower mean scores than the rest of the language groups, throughout all of the tested constructs. The F statistic was also calculated as part of the ANOVA to determine whether the differences in the mean scores of the respondents’ languages were significant (Burns & Grove 2009:505; Polit & Beck 2012:417). The results for the F statistic are displayed in Table 6.30.

**TABLE 6.30: F-TEST STATISTICS OF RESPONDENTS’ LANGUAGES AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)\***

|  |          | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen’s F |
|--|----------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description Q1-5        | Language | 3   | 5.51303        | 1.83768     | 1.0199 | 0.3843   | 0.11      |
|  | Error    | 266 | 479.27527      | 1.80179     |        |          |           |
|  | C. Total | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem Orientation Q11-16 | Language | 3   | 4.61070        | 1.53690     | 1.1232 | 0.3401   | 0.11      |
|  | Error    | 266 | 363.96172      | 1.36828     |        |          |           |
|  | C. Total | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity Q23-28        | Language | 3   | 8.05593        | 2.68531     | 1.0623 | 0.3656   | 0.11      |
|  | Error    | 266 | 672.40796      | 2.52785     |        |          |           |
|  | C. Total | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy Q35-39          | Language | 3   | 4.35915        | 1.45305     | 0.6154 | 0.6055   | 0.08      |
|  | Error    | 266 | 628.03551      | 2.36104     |        |          |           |
|  | C. Total | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality Q45-50        | Language | 3   | 2.13378        | 0.71126     | 0.2962 | 0.8281   | 0.06      |
|  | Error    | 266 | 638.70778      | 2.40116     |        |          |           |
|  | C. Total | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism Q57-62    | Language | 3   | 0.70050        | 0.23350     | 0.1096 | 0.9544   | 0.03      |
|  | Error    | 266 | 566.70650      | 2.13048     |        |          |           |
|  | C. Total | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description Q6-10       | Language | 3   | 7.56085        | 2.52028     | 1.3691 | 0.2526   | 0.12      |
|  | Error    | 266 | 489.65766      | 1.84082     |        |          |           |
|  | C. Total | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem Orientation Q17-22 | Language | 3   | 2.81512        | 0.93837     | 0.3900 | 0.7603   | 0.07      |
|  | Error    | 266 | 639.94250      | 2.40580     |        |          |           |
|  | C. Total | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity Q29-34        | Language | 3   | 8.11747        | 2.70582     | 0.9336 | 0.4249   | 0.10      |
|  | Error    | 266 | 770.96699      | 2.89837     |        |          |           |
|  | C. Total | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy Q40-44          | Language | 3   | 8.16379        | 2.72126     | 0.9865 | 0.3996   | 0.11      |
|  | Error    | 266 | 733.78717      | 2.75860     |        |          |           |
|  | C. Total | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality Q51-56        | Language | 3   | 0.89050        | 0.29683     | 0.1262 | 0.9445   | 0.04      |
|  | Error    | 266 | 625.40950      | 2.35116     |        |          |           |
|  | C. Total | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism Q63-68    | Language | 3   | 2.01929        | 0.67310     | 0.2413 | 0.8675   | 0.05      |
|  | Error    | 266 | 742.11126      | 2.78989     |        |          |           |
|  | C. Total | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = Professional nurse

OM = Operational manager



The F-test results, as displayed in Table 6.30, revealed that the p-value was above 0.05 for all six conceptual continuums; however, small, statistically insignificant differences were found between respondents' languages pertaining to their communication behaviour and perception of their operational manager's communication behaviour. The Cohen's f effect size also showed differences in most constructs that ranged between small (0.1) to medium (0.25). Based on these findings no further post-hoc analysis was performed.

**6.4.4.4 Factor 4: Respondents' gender, pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs.**

A one-way ANOVA was performed to test factor 4, the differences between respondents' gender, pertaining to their communication behaviour orientation and perceptions of operational manager's communication behaviour orientation, with regard to the six conceptual continuums. The results are displayed in Table 6.31 (one-way ANOVA statistics) and Table 6.32 (F-tests).

**TABLE 6.31: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' GENDER AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OM COMMUNICATION BEHAVIOUR RELATING TO THE SIX CONSTRUCTS (N = 270)\***

|  | Gender | N   | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|--|--------|-----|---------|----------------|------------|-------------------------------|-------------------------------|
| PN: Evaluation-Description Q1-5        | Male   | 25  | 4.84000 | 1.28841        | 0.25768    | 4.3082                        | 5.3718                        |
|  | Female | 245 | 4.88816 | 1.35031        | 0.08627    | 4.7182                        | 5.0581                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| PN: Control-Problem Orientation Q11-16 | Male   | 25  | 5.36667 | 1.01607        | 0.20321    | 4.9473                        | 5.7861                        |
|  | Female | 245 | 5.08776 | 1.18396        | 0.07564    | 4.9388                        | 5.2367                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| PN: Strategy-Spontaneity Q23-28        | Male   | 25  | 4.80667 | 1.30940        | 0.26188    | 4.2662                        | 5.3472                        |
|  | Female | 245 | 4.64626 | 1.61795        | 0.10337    | 4.4427                        | 4.8499                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| PN: Neutrality-Empathy Q35-39          | Male   | 25  | 5.15200 | 1.14787        | 0.22957    | 4.6782                        | 5.6258                        |
|  | Female | 245 | 4.67102 | 1.56227        | 0.09981    | 4.4744                        | 4.8676                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| PN: Superiority-Equality Q45-50        | Male   | 25  | 4.64667 | 1.48474        | 0.29695    | 4.0338                        | 5.2595                        |
|  | Female | 245 | 4.53946 | 1.55193        | 0.09915    | 4.3442                        | 4.7348                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| PN: Certainty-Provisionalism Q57-62    | Male   | 25  | 4.80000 | 1.39775        | 0.27955    | 4.2230                        | 5.3770                        |
|  | Female | 245 | 4.89932 | 1.46026        | 0.09329    | 4.7156                        | 5.0831                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Evaluation-Description Q6-10       | Male   | 25  | 4.78400 | 1.20543        | 0.24109    | 4.2864                        | 5.2816                        |
|  | Female | 245 | 4.60980 | 1.37551        | 0.08788    | 4.4367                        | 4.7829                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Control-Problem Orientation Q17-22 | Male   | 25  | 4.96000 | 1.36192        | 0.27238    | 4.3978                        | 5.5222                        |
|  | Female | 245 | 4.57279 | 1.56137        | 0.09975    | 4.3763                        | 4.7693                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Strategy-Spontaneity Q29-34        | Male   | 25  | 4.64667 | 1.61898        | 0.32380    | 3.9784                        | 5.3150                        |
|  | Female | 245 | 4.13333 | 1.70606        | 0.10900    | 3.9186                        | 4.3480                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Neutrality-Empathy Q40-44          | Male   | 25  | 4.78400 | 1.41530        | 0.28306    | 4.1998                        | 5.3682                        |
|  | Female | 245 | 4.32735 | 1.68059        | 0.10737    | 4.1159                        | 4.5388                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Superiority-Equality Q51-56        | Male   | 25  | 4.53333 | 1.35571        | 0.27114    | 3.9737                        | 5.0929                        |
|  | Female | 245 | 4.48435 | 1.54460        | 0.09868    | 4.2900                        | 4.6787                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Certainty-Provisionalism Q63-68    | Male   | 25  | 4.11333 | 1.58020        | 0.31604    | 3.4611                        | 4.7656                        |
|  | Female | 245 | 4.11701 | 1.67455        | 0.10698    | 3.9063                        | 4.3277                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |

PN = Professional nurse

OM = Operational manager

Both of the 'gender' groups in the constructs (tested between groups), displayed in Table 6.31, delivered a mean score of above 4.0, in relation to the gender of the respondents male and female. The only two constructs where a higher mean score was delivered was in the professional nurse: Control-Problem Orientation continuum (mean score for 'male' group = 5.37 and mean score for 'female' group = 5.09) and the professional nurse: Neutrality-Empathy continuum (mean score for 'male' group = 5.15). The F statistic was also calculated as part of the ANOVA to determine whether the differences in the mean scores of the respondents' gender were significant (Burns & Grove 2009:505; Polit & Beck 2012:417). The results are displayed in Table 6.32.

**TABLE 6.32: F-TEST STATISTICS OF RESPONDENTS' GENDER AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR, REGARDING THE SIX CONSTRUCTS (N = 270)\***

|  |          | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's F |
|--|----------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description Q1-5        | Gender   | 1   | 0.05262        | 0.05262     | 0.0291 | 0.8647   | 0.01      |
|  | Error    | 268 | 484.73567      | 1.80872     |        |          |           |
|  | C. Total | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem Orientation Q11-16 | Gender   | 1   | 1.76472        | 1.76472     | 1.2894 | 0.2572   | 0.07      |
|  | Error    | 268 | 366.80771      | 1.36869     |        |          |           |
|  | C. Total | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity Q23-28        | Gender   | 1   | 0.58371        | 0.58371     | 0.2301 | 0.6318   | 0.03      |
|  | Error    | 268 | 679.88018      | 2.53687     |        |          |           |
|  | C. Total | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy Q35-39          | Gender   | 1   | 5.24802        | 5.24802     | 2.2426 | 0.1354   | 0.09      |
|  | Error    | 268 | 627.14664      | 2.34010     |        |          |           |
|  | C. Total | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality Q45-50        | Gender   | 1   | 0.26075        | 0.26075     | 0.1091 | 0.7414   | 0.02      |
|  | Error    | 268 | 640.58082      | 2.39023     |        |          |           |
|  | C. Total | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism Q57-62    | Gender   | 1   | 0.22378        | 0.22378     | 0.1057 | 0.7453   | 0.02      |
|  | Error    | 268 | 567.18322      | 2.11636     |        |          |           |
|  | C. Total | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description Q6-10       | Gender   | 1   | 0.68843        | 0.68843     | 0.3716 | 0.5427   | 0.04      |
|  | Error    | 268 | 496.53009      | 1.85272     |        |          |           |
|  | C. Total | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem Orientation Q17-22 | Gender   | 1   | 3.40124        | 3.40124     | 1.4257 | 0.2335   | 0.07      |
|  | Error    | 268 | 639.35637      | 2.38566     |        |          |           |
|  | C. Total | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity Q29-34        | Gender   | 1   | 5.97780        | 5.97780     | 2.0722 | 0.1512   | 0.09      |
|  | Error    | 268 | 773.10667      | 2.88473     |        |          |           |
|  | C. Total | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy Q40-44          | Gender   | 1   | 4.73059        | 4.73059     | 1.7197 | 0.1909   | 0.08      |
|  | Error    | 268 | 737.22038      | 2.75082     |        |          |           |
|  | C. Total | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality Q51-56        | Gender   | 1   | 0.05442        | 0.05442     | 0.0233 | 0.8788   | 0.00      |
|  | Error    | 268 | 626.24558      | 2.33674     |        |          |           |
|  | C. Total | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism Q63-68    | Gender   | 1   | 0.00031        | 0.00031     | 0.0001 | 0.9916   | 0.00      |
|  | Error    | 268 | 744.13025      | 2.77661     |        |          |           |
|  | C. Total | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = Professional nurse

OM = Operational manager

The F-test results, as displayed in Table 6.32, revealed that the p-value was above 0.05 for all six conceptual continuums. A slightly lower p-value than the p-values of the other conceptual continuums was found in the professional nurse: Neutrality-Empathy continuum and the operational manager: Strategy-Spontaneity continuum.

No statistically significant differences were found between respondents' gender and their communication behaviour and perception of their operational manager's communication behaviour. The Cohen's *f* effect size also showed that all constructs ranged below 0.1; a small effect. No post-ad hoc tests were necessary for this factor.

**6.4.4.5 Factor 5: Respondents' institutions (hospitals), pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs**

A one-way ANOVA was performed to test factor 5: the differences between respondents' institutions (public hospitals) pertaining to their communication behaviour and their perceptions of operational manager communication behaviour orientation, with regard to the six constructs. This test was applicable, as three hospital groups (hospital A, hospital B and hospital C) were being investigated. The results are displayed in Table 6.33 (one-way ANOVA statistics) and Table 6.34 (F-statistics).

The findings, as displayed in Table 6.33, indicated that all but one of the 'Hospital' groups in the constructs (tested between groups) delivered a mean score of above 4.0, in relation to the hospitals: hospital A, hospital B and hospital C. The operational manager: Certainty-Provisionalism continuum delivered a mean score of 3.94 for hospital A.

Noteworthy was that when the different hospital groups were compared (tested within groups); some hospital groups delivered different scores. The 'hospital C' group consistently delivered a higher mean score than the mean scores of the rest of the hospital groups, throughout all the constructs. By contrast, the 'hospital A' group consistently delivered lower mean scores than the rest of the hospital groups throughout all of the tested constructs.

**TABLE 6.33: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' HOSPITALS AND COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR IN RELATION TO THE SIX CONSTRUCTS (N = 270)\***

|  | Hospital   | N   | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|--|------------|-----|---------|----------------|------------|-------------------------------|-------------------------------|
| PN: Evaluation-Description Q1-5        | Hospital A | 90  | 4.66222 | 1.47142        | 0.15510    | 4.3540                        | 4.9704                        |
|  | Hospital B | 90  | 4.96222 | 1.27196        | 0.13408    | 4.6958                        | 5.2286                        |
|  | Hospital C | 90  | 5.02667 | 1.26000        | 0.13282    | 4.7628                        | 5.2906                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| PN: Control-Problem Orientation Q11-16 | Hospital A | 90  | 4.97222 | 1.40030        | 0.14760    | 4.6789                        | 5.2655                        |
|  | Hospital B | 90  | 5.16667 | 1.06616        | 0.11238    | 4.9434                        | 5.3900                        |
|  | Hospital C | 90  | 5.20185 | 1.00638        | 0.10608    | 4.9911                        | 5.4126                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| PN: Strategy-Spontaneity Q23-28        | Hospital A | 90  | 4.49074 | 1.71400        | 0.18067    | 4.1317                        | 4.8497                        |
|  | Hospital B | 90  | 4.70185 | 1.54267        | 0.16261    | 4.3787                        | 5.0250                        |
|  | Hospital C | 90  | 4.79074 | 1.50997        | 0.15916    | 4.4745                        | 5.1070                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| PN: Neutrality-Empathy Q35-39          | Hospital A | 90  | 4.56889 | 1.65140        | 0.17407    | 4.2230                        | 4.9148                        |
|  | Hospital B | 90  | 4.73778 | 1.48116        | 0.15613    | 4.4276                        | 5.0480                        |
|  | Hospital C | 90  | 4.84000 | 1.46516        | 0.15444    | 4.5331                        | 5.1469                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| PN: Superiority-Equality Q45-50        | Hospital A | 90  | 4.38889 | 1.61956        | 0.17072    | 4.0497                        | 4.7281                        |
|  | Hospital B | 90  | 4.57222 | 1.53223        | 0.16151    | 4.2513                        | 4.8931                        |
|  | Hospital C | 90  | 4.68704 | 1.47785        | 0.15578    | 4.3775                        | 4.9966                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| PN: Certainty-Provisionalism Q57-62    | Hospital A | 90  | 4.71852 | 1.60594        | 0.16928    | 4.3822                        | 5.0549                        |
|  | Hospital B | 90  | 4.93704 | 1.37586        | 0.14503    | 4.6489                        | 5.2252                        |
|  | Hospital C | 90  | 5.01481 | 1.36220        | 0.14359    | 4.7295                        | 5.3001                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Evaluation-Description Q6-10       | Hospital A | 90  | 4.46444 | 1.54711        | 0.16308    | 4.1404                        | 4.7885                        |
|  | Hospital B | 90  | 4.67111 | 1.23518        | 0.13020    | 4.4124                        | 4.9298                        |
|  | Hospital C | 90  | 4.74222 | 1.27491        | 0.13439    | 4.4752                        | 5.0092                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Control-Problem Orientation 17-22  | Hospital A | 90  | 4.43333 | 1.64267        | 0.17315    | 4.0893                        | 4.7774                        |
|  | Hospital B | 90  | 4.62037 | 1.49761        | 0.15786    | 4.3067                        | 4.9340                        |
|  | Hospital C | 90  | 4.77222 | 1.49081        | 0.15714    | 4.4600                        | 5.0845                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Strategy-Spontaneity Q29-34        | Hospital A | 90  | 4.06111 | 1.79183        | 0.18888    | 3.6858                        | 4.4364                        |
|  | Hospital B | 90  | 4.19444 | 1.64295        | 0.17318    | 3.8503                        | 4.5386                        |
|  | Hospital C | 90  | 4.28704 | 1.67861        | 0.17694    | 3.9355                        | 4.6386                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Neutrality-Empathy Q40-44          | Hospital A | 90  | 4.20667 | 1.72110        | 0.18142    | 3.8462                        | 4.5671                        |
|  | Hospital B | 90  | 4.40667 | 1.59788        | 0.16843    | 4.0720                        | 4.7413                        |
|  | Hospital C | 90  | 4.49556 | 1.66638        | 0.17565    | 4.1465                        | 4.8446                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Superiority-Equality Q51-56        | Hospital A | 90  | 4.31481 | 1.61366        | 0.17009    | 3.9768                        | 4.6528                        |
|  | Hospital B | 90  | 4.49259 | 1.50383        | 0.15852    | 4.1776                        | 4.8076                        |
|  | Hospital C | 90  | 4.65926 | 1.45316        | 0.15318    | 4.3549                        | 4.9636                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Certainty-Provisionalism Q63-68    | Hospital A | 90  | 3.94444 | 1.75123        | 0.18460    | 3.5777                        | 4.3112                        |
|  | Hospital B | 90  | 4.17222 | 1.60493        | 0.16917    | 3.8361                        | 4.5084                        |
|  | Hospital C | 90  | 4.23333 | 1.63448        | 0.17229    | 3.8910                        | 4.5757                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |

PN = Professional nurse

OM = Operational manager

In contrast to hospital A, hospital C might have a more supportive organisational climate (and a supportive communication climate), explaining the difference in orientation. It is assumed that hospital C has a communication climate that is more collaborative, trusting and supportive in nature; however, further investigation into this phenomenon is necessary to support this assumption. The F statistic was also calculated as part of the ANOVA to determine whether the differences in the mean scores of the respondents' hospitals were significant (Burns & Grove 2009:505; Polit & Beck 2012:417). The results for the F statistic are displayed in Table 6.34.

TABLE 6.34: F-TEST STATISTICS OF RESPONDENTS' HOSPITALS AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR IN RELATION TO THE SIX CONSTRUCTS (N = 270)\*

|  |          | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's F |
|--|----------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description Q1-5        | Hospital | 2   | 6.80919        | 3.40459     | 1.9018 | 0.1513   | 0.12      |
|  | Error    | 267 | 477.97911      | 1.79018     |        |          |           |
|  | C. Total | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem Orientation Q11-16 | Hospital | 2   | 2.75329        | 1.37665     | 1.0048 | 0.3675   | 0.09      |
|  | Error    | 267 | 365.81914      | 1.37011     |        |          |           |
|  | C. Total | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity Q23-28        | Hospital | 2   | 4.27407        | 2.13704     | 0.8438 | 0.4312   | 0.08      |
|  | Error    | 267 | 676.18981      | 2.53255     |        |          |           |
|  | C. Total | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy Q35-39          | Hospital | 2   | 3.37422        | 1.68711     | 0.7161 | 0.4896   | 0.07      |
|  | Error    | 267 | 629.02044      | 2.35588     |        |          |           |
|  | C. Total | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality Q45-50        | Hospital | 2   | 4.07058        | 2.03529     | 0.8534 | 0.4271   | 0.08      |
|  | Error    | 267 | 636.77099      | 2.38491     |        |          |           |
|  | C. Total | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism Q57-62    | Hospital | 2   | 4.24774        | 2.12387     | 1.0069 | 0.3667   | 0.09      |
|  | Error    | 267 | 563.15926      | 2.10921     |        |          |           |
|  | C. Total | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description Q6-10       | Hospital | 2   | 3.74785        | 1.87393     | 1.0139 | 0.3642   | 0.09      |
|  | Error    | 267 | 493.47067      | 1.84820     |        |          |           |
|  | C. Total | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem Orientation Q17-22 | Hospital | 2   | 5.18663        | 2.59331     | 1.0860 | 0.3390   | 0.09      |
|  | Error    | 267 | 637.57099      | 2.38791     |        |          |           |
|  | C. Total | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity Q29-34        | Hospital | 2   | 2.32181        | 1.16091     | 0.3990 | 0.6714   | 0.05      |
|  | Error    | 267 | 776.76265      | 2.90922     |        |          |           |
|  | C. Total | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy Q40-44          | Hospital | 2   | 3.94074        | 1.97037     | 0.7128 | 0.4912   | 0.07      |
|  | Error    | 267 | 738.01022      | 2.76408     |        |          |           |
|  | C. Total | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality Q51-56        | Hospital | 2   | 5.34074        | 2.67037     | 1.1482 | 0.3188   | 0.09      |
|  | Error    | 267 | 620.95926      | 2.32569     |        |          |           |
|  | C. Total | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism Q63-68    | Hospital | 2   | 4.17222        | 2.08611     | 0.7527 | 0.4721   | 0.07      |
|  | Error    | 267 | 739.95833      | 2.77138     |        |          |           |
|  | C. Total | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = Professional nurse

OM = Operational manager

The F-test results, as displayed in Table 6.34, revealed that the p-value was above 0.05 for all six conceptual continuums, however, small, statistically insignificant differences were found between respondents' hospitals pertaining to their communication behaviour and perception of operational manager communication behaviour. The Cohen's f effect size also showed that most of the constructs differed in a small effect range (below 0.1). Based on these findings, no further post-hoc analysis was performed.

#### 6.4.4.6 Factor 6: Respondents' types of unit/ward, pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs

A one-way ANOVA was performed to test factor 6, the differences between the respondents' types of unit/ward pertaining to their communication behaviour orientation and their perceptions of operational manager communication behaviour orientation.

Four types of unit/ward groups (Medical, Surgical, Speciality and Administration) were being investigated. The results are displayed in Table 6.35 (one-way ANOVA statistics) and Table 6.36 (F-test statistics).

**TABLE 6.35: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' UNIT/WARD AND COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)\***

|   | Units/ wards    | N   | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|---|-----------------|-----|---------|----------------|------------|-------------------------------|-------------------------------|
| <b>PN: Evaluation-Description Q1-5</b>        | Medical unit    | 98  | 4.60612 | 1.26734        | 0.12802    | 4.3520                        | 4.8602                        |
|   | Surgical unit   | 88  | 5.11364 | 1.22795        | 0.13090    | 4.8535                        | 5.3738                        |
|   | Speciality unit | 77  | 4.89091 | 1.50107        | 0.17106    | 4.5502                        | 5.2316                        |
|   | Administration  | 7   | 5.80000 | 1.18884        | 0.44934    | 4.7005                        | 6.8995                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Control-Problem Orientation Q11-16</b> | Medical unit    | 98  | 4.90816 | 1.14051        | 0.11521    | 4.6795                        | 5.1368                        |
|   | Surgical unit   | 88  | 5.35417 | 1.13259        | 0.12073    | 5.1142                        | 5.5941                        |
|   | Speciality unit | 77  | 5.03247 | 1.21246        | 0.13817    | 4.7573                        | 5.3077                        |
|   | Administration  | 7   | 5.85714 | 0.95466        | 0.36083    | 4.9742                        | 6.7401                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Strategy-Spontaneity Q23-28</b>        | Medical unit    | 98  | 4.45748 | 1.47513        | 0.14901    | 4.1617                        | 4.7532                        |
|   | Surgical unit   | 88  | 4.79167 | 1.77561        | 0.18928    | 4.4155                        | 5.1679                        |
|   | Speciality unit | 77  | 4.62338 | 1.48294        | 0.16900    | 4.2868                        | 4.9600                        |
|   | Administration  | 7   | 6.28571 | 0.79765        | 0.30148    | 5.5480                        | 7.0234                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Neutrality-Empathy Q35-39</b>          | Medical unit    | 98  | 4.38367 | 1.42631        | 0.14408    | 4.0977                        | 4.6696                        |
|   | Surgical unit   | 88  | 4.96364 | 1.63512        | 0.17430    | 4.6172                        | 5.3101                        |
|   | Speciality unit | 77  | 4.74286 | 1.48956        | 0.16975    | 4.4048                        | 5.0809                        |
|   | Administration  | 7   | 5.94286 | 1.08145        | 0.40875    | 4.9427                        | 6.9430                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Superiority-Equality Q45-50</b>        | Medical unit    | 98  | 4.24830 | 1.45124        | 0.14660    | 3.9573                        | 4.5393                        |
|   | Surgical unit   | 88  | 4.79167 | 1.59406        | 0.16993    | 4.4539                        | 5.1294                        |
|   | Speciality unit | 77  | 4.51732 | 1.54243        | 0.17578    | 4.1672                        | 4.8674                        |
|   | Administration  | 7   | 6.07143 | 0.84906        | 0.32091    | 5.2862                        | 6.8567                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>PN: Certainty-Provisionalism Q57-62</b>    | Medical unit    | 98  | 4.61905 | 1.39690        | 0.14111    | 4.3390                        | 4.8991                        |
|   | Surgical unit   | 88  | 5.14015 | 1.50497        | 0.16043    | 4.8213                        | 5.4590                        |
|   | Speciality unit | 77  | 4.87013 | 1.42493        | 0.16239    | 4.5467                        | 5.1935                        |
|   | Administration  | 7   | 5.76190 | 1.20515        | 0.45550    | 4.6473                        | 6.8765                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Evaluation-Description Q6-10</b>       | Medical unit    | 98  | 4.35306 | 1.31942        | 0.13328    | 4.0885                        | 4.6176                        |
|   | Surgical unit   | 88  | 4.89318 | 1.37095        | 0.14614    | 4.6027                        | 5.1837                        |
|   | Speciality unit | 77  | 4.58701 | 1.36511        | 0.15557    | 4.2772                        | 4.8969                        |
|   | Administration  | 7   | 5.51429 | 0.81533        | 0.30817    | 4.7602                        | 6.2683                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Control-Problem Orientation 17-22</b>  | Medical unit    | 98  | 4.48469 | 1.42432        | 0.14388    | 4.1991                        | 4.7703                        |
|   | Surgical unit   | 88  | 4.69697 | 1.70615        | 0.18188    | 4.3355                        | 5.0585                        |
|   | Speciality unit | 77  | 4.54762 | 1.50313        | 0.17130    | 4.2065                        | 4.8888                        |
|   | Administration  | 7   | 5.90476 | 1.06222        | 0.40148    | 4.9224                        | 6.8871                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Strategy-Spontaneity Q29-34</b>        | Medical unit    | 98  | 3.95748 | 1.63182        | 0.16484    | 3.6303                        | 4.2846                        |
|   | Surgical unit   | 88  | 4.38068 | 1.79024        | 0.19084    | 4.0014                        | 4.7600                        |
|   | Speciality unit | 77  | 4.09091 | 1.64360        | 0.18731    | 3.7179                        | 4.4640                        |
|   | Administration  | 7   | 5.78571 | 1.26460        | 0.47797    | 4.6162                        | 6.9553                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Neutrality-Empathy Q40-44</b>          | Medical unit    | 98  | 4.08163 | 1.51415        | 0.15295    | 3.7781                        | 4.3852                        |
|   | Surgical unit   | 88  | 4.57727 | 1.76308        | 0.18794    | 4.2037                        | 4.9508                        |
|   | Speciality unit | 77  | 4.36364 | 1.68452        | 0.19197    | 3.9813                        | 4.7460                        |
|   | Administration  | 7   | 5.85714 | 1.00475        | 0.37976    | 4.9279                        | 6.7864                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Superiority-Equality Q51-56</b>        | Medical unit    | 98  | 4.15306 | 1.40948        | 0.14238    | 3.8705                        | 4.4356                        |
|   | Surgical unit   | 88  | 4.75000 | 1.56694        | 0.16704    | 4.4180                        | 5.0820                        |
|   | Speciality unit | 77  | 4.49134 | 1.54865        | 0.17649    | 4.1398                        | 4.8428                        |
|   | Administration  | 7   | 5.88095 | 1.08745        | 0.41102    | 4.8752                        | 6.8867                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |
| <b>OM: Certainty-Provisionalism Q63-68</b>    | Medical unit    | 98  | 3.76701 | 1.50367        | 0.15189    | 3.4655                        | 4.0685                        |
|   | Surgical unit   | 88  | 4.44129 | 1.76420        | 0.18806    | 4.0675                        | 4.8151                        |
|   | Speciality unit | 77  | 4.11255 | 1.67202        | 0.19054    | 3.7331                        | 4.4921                        |
|   | Administration  | 7   | 4.97619 | 1.58823        | 0.60030    | 3.5073                        | 6.4451                        |
|   | Total           | 270 | -       | -              | -          | -                             | -                             |

The findings, displayed in Table 6.35, indicate that all but one of the 'Unit/ward' groups in the constructs (tested between groups) delivered a mean score of above 4.0, in relation to units/wards of respondents: Medical unit, Surgical unit, Speciality unit and Administration. Only the 'Medical unit' delivered a mean score below 4.0 in two of the continuums, namely the operational manager: Strategy-Spontaneity continuum (mean score = 3.96) and the operational manager: Certainty-Provisionalism continuum (mean score = 3.77). In testing the unit/ward groups within the groups, some unit/ward groups delivered different scores. The 'Administration units/wards' group consistently had higher mean scores than the mean scores of the rest of the unit/ward groups, throughout all the constructs. The 'Medical unit/ward' group consistently delivered lower mean scores than the rest of the unit/ward groups, throughout all of the tested constructs. The F statistic was also calculated as part of the ANOVA to determine whether the differences in the mean scores of the respondents' units/wards were significant (Burns & Grove 2009:505; Polit & Beck 2012:417). The results for the F statistic are displayed in Table 6.36.

**TABLE 6.36: F-TEST STATISTICS OF RESPONDENTS' UNIT/WARD AND COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR IN TERMS OF THE SIX CONSTRUCTS (N = 270)\***

|  |            | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's F |
|--|------------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description Q1-5        | Unit/ ward | 3   | 18.08470       | 6.02823     | 3.4358 | 0.0175*  | 0.20      |
|  | Error      | 266 | 466.70360      | 1.75452     |        |          |           |
|  | C. Total   | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem Orientation Q11-16 | Unit/ ward | 3   | 13.60562       | 4.53521     | 3.3985 | 0.0184*  | 0.20      |
|  | Error      | 266 | 354.96680      | 1.33446     |        |          |           |
|  | C. Total   | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity Q23-28        | Unit/ ward | 3   | 24.14844       | 8.04948     | 3.2624 | 0.0220*  | 0.19      |
|  | Error      | 266 | 656.31545      | 2.46735     |        |          |           |
|  | C. Total   | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy Q35-39          | Unit/ ward | 3   | 26.81144       | 8.93715     | 3.9256 | 0.0091*  | 0.21      |
|  | Error      | 266 | 605.58323      | 2.27663     |        |          |           |
|  | C. Total   | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality Q45-50        | Unit/ ward | 3   | 30.34509       | 10.1150     | 4.4072 | 0.0048*  | 0.22      |
|  | Error      | 266 | 610.49647      | 2.2951      |        |          |           |
|  | C. Total   | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism Q57-62    | Unit/ ward | 3   | 18.05328       | 6.01776     | 2.9138 | 0.0348*  | 0.18      |
|  | Error      | 266 | 549.35372      | 2.06524     |        |          |           |
|  | C. Total   | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description Q6-10       | Unit/ ward | 3   | 19.22294       | 6.40765     | 3.5658 | 0.0147*  | 0.20      |
|  | Error      | 266 | 477.99558      | 1.79698     |        |          |           |
|  | C. Total   | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem Orientation Q17-22 | Unit/ ward | 3   | 14.23836       | 4.74612     | 2.0086 | 0.1131   | 0.15      |
|  | Error      | 266 | 628.51925      | 2.36285     |        |          |           |
|  | C. Total   | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity Q29-34        | Unit/ ward | 3   | 27.05559       | 9.01853     | 3.1899 | 0.0242*  | 0.19      |
|  | Error      | 266 | 752.02888      | 2.82718     |        |          |           |
|  | C. Total   | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy Q40-44          | Unit/ ward | 3   | 27.41415       | 9.13805     | 3.4018 | 0.0183*  | 0.20      |
|  | Error      | 266 | 714.53681      | 2.68623     |        |          |           |
|  | C. Total   | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality Q51-56        | Unit/ ward | 3   | 30.61756       | 10.2059     | 4.5574 | 0.0039*  | 0.23      |
|  | Error      | 266 | 595.68244      | 2.2394      |        |          |           |
|  | C. Total   | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism Q63-68    | Unit/ ward | 3   | 26.42779       | 8.80926     | 3.2650 | 0.0219*  | 0.19      |
|  | Error      | 266 | 717.70276      | 2.69813     |        |          |           |
|  | C. Total   | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = Professional nurse

OM = Operational manager

The F-test results, displayed in Table 6.36, revealed that the p-value was below 0.05 for all six of the conceptual continuums: however, statistically significant differences were found between all the constructs except for the operational manager: Control-Problem Orientation continuum (Probability > F = 0.1131). The Cohen's f effect size also showed that all constructs, except for operational manager: Control-Problem Orientation, ranged between small (0.1) to medium (0.25). Based on these results, a further ad-hoc test (the Tukey-Kramer test) was performed. The results of the Tukey-Kramer test are displayed in Table 6.37.

**TABLE 6.37: TUKEY-KRAMER STATISTICS OF RESPONDENTS' UNIT/WARD AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)\***

|  | Units/ wards    | Administration | Surgical | Speciality Unit | Medical |
|--|-----------------|----------------|----------|-----------------|---------|
| PN: Evaluation-Description Q1-5        | Administration  | -1.8305        | -0.6585  | -0.4428         | -0.1459 |
|  | Surgical        | -0.6585        | -0.5163  | -0.3117         | 0.0046  |
|  | Speciality Unit | -0.4428        | -0.3117  | -0.5519         | -0.2367 |
|  | Medical         | -0.1459        | 0.0046   | -0.2367         | -0.4892 |
| PN: Control-Problem Orientation Q11-16 | Administration  | -1.5964        | -0.6699  | -0.3543         | -0.2195 |
|  | Surgical        | -0.6699        | -0.4502  | -0.1443         | 0.0074  |
|  | Speciality Unit | -0.3543        | -0.1443  | -0.4813         | -0.3305 |
|  | Medical         | -0.2195        | 0.0074   | -0.3305         | -0.4267 |
| PN: Strategy-Spontaneity Q23-28        | Administration  | -2.1707        | -0.1008  | 0.0592          | 0.2394  |
|  | Surgical        | -0.1008        | -0.6122  | -0.4654         | -0.2622 |
|  | Speciality Unit | 0.0592         | -0.4654  | -0.6545         | -0.4525 |
|  | Medical         | 0.2394         | -0.2622  | -0.4525         | -0.5801 |
| PN: Neutrality-Empathy Q35-39          | Administration  | -2.0851        | -0.5527  | -0.3400         | 0.0330  |
|  | Surgical        | -0.5527        | -0.5881  | -0.3879         | 0.0071  |
|  | Speciality Unit | -0.3400        | -0.3879  | -0.6287         | -0.2349 |
|  | Medical         | 0.0330         | 0.0071   | -0.2349         | -0.5573 |
| PN: Superiority-Equality Q45-50        | Administration  | -2.0936        | -0.2584  | 0.0079          | 0.2908  |
|  | Surgical        | -0.2584        | -0.5905  | -0.3368         | -0.0318 |
|  | Speciality Unit | 0.0079         | -0.3368  | -0.6312         | -0.3274 |
|  | Medical         | 0.2908         | -0.0318  | -0.3274         | -0.5595 |
| PN: Certainty-Provisionalism Q57-62    | Administration  | -1.9860        | -0.8373  | -0.5750         | -0.3107 |
|  | Surgical        | -0.8373        | -0.5601  | -0.3098         | -0.0245 |
|  | Speciality Unit | -0.5750        | -0.3098  | -0.5988         | -0.3147 |
|  | Medical         | -0.3107        | -0.0245  | -0.3147         | -0.5308 |
| OM: Evaluation-Description Q6-10       | Administration  | -1.8525        | -0.7399  | -0.4409         | -0.1947 |
|  | Surgical        | -0.7399        | -0.5225  | -0.2346         | 0.0311  |
|  | Speciality Unit | -0.4409        | -0.2346  | -0.5586         | -0.2938 |
|  | Medical         | -0.1947        | 0.0311   | -0.2938         | -0.4951 |
| OM: Control-Problem Orientation Q17-22 | Administration  | -2.1243        | -0.3529  | -0.2117         | -0.1347 |
|  | Surgical        | -0.3529        | -0.5991  | -0.4708         | -0.3714 |
|  | Speciality Unit | -0.2117        | -0.4708  | -0.6405         | -0.5423 |
|  | Medical         | -0.1347        | -0.3714  | -0.5423         | -0.5677 |
| OM: Strategy-Spontaneity Q29-34        | Administration  | -2.3236        | -0.3021  | -0.0213         | 0.1275  |
|  | Surgical        | -0.3021        | -0.6553  | -0.3886         | -0.2152 |
|  | Speciality Unit | -0.0213        | -0.3886  | -0.7006         | -0.5286 |
|  | Medical         | 0.1275         | -0.2152  | -0.5286         | -0.6210 |
| OM: Neutrality-Empathy Q40-44          | Administration  | -2.2650        | -0.3842  | -0.1793         | 0.1177  |
|  | Surgical        | -0.3842        | -0.6388  | -0.4476         | -0.1267 |
|  | Speciality Unit | -0.1793        | -0.4476  | -0.6829         | -0.3633 |
|  | Medical         | 0.1177         | -0.1267  | -0.3633         | -0.6053 |
| OM: Superiority-Equality Q51-56        | Administration  | -2.0680        | -0.3884  | -0.1377         | 0.2143  |
|  | Surgical        | -0.3884        | -0.5833  | -0.3451         | 0.0288  |
|  | Speciality Unit | -0.1377        | -0.3451  | -0.6235         | -0.2509 |
|  | Medical         | 0.2143         | 0.0288   | -0.2509         | -0.5527 |
| OM: Certainty-Provisionalism Q63-68    | Administration  | -2.2700        | -1.1328  | -0.8128         | -0.4523 |
|  | Surgical        | -1.1328        | -0.6402  | -0.3340         | 0.0506  |
|  | Speciality Unit | -0.8128        | -0.3340  | -0.6844         | -0.3012 |
|  | Medical         | -0.4523        | 0.0506   | -0.3012         | -0.6067 |

PN = Professional nurse

OM = Operational manager



From the data in Table 6.37 it can be deduced that there were positive values for the six conceptual continuums between the Medical and Surgical units and between the Medical and Administrative units of the respondents, pertaining to their communication behaviour and their perception of operational manager communication behaviour. Therefore it can be deduced that there is a significant difference between the tested pairs of means and a difference between the respondents' units/wards pertaining to their communication behaviour, and perceptions of operational manager communication behaviour, in terms of the six constructs.

The reasons for the significant differences between the groups of professional nurses functioning in different wards/units are unknown, and can only be speculated on, but are possibly due to the respondents being exposed to different micro-organisational climates (as well as micro-communication climates) throughout the hospital.

It is also possible that there could be a higher level of inter-professional cooperation in some nursing units than in others. In certain nursing units, inter-professional cooperation is essential for good nursing care outcomes. Studies by Dougherty and Larson (2010), Newcomb (2011) and Reader, Flin, Mearns and Cuthbertson (2007) have revealed that nurses in complex work environments (such as ICUs) do communicate differently. These findings can, however, not be generalised to all nursing wards/units and all health care facilities.

## **6.5 RELATIONSHIP BETWEEN THE COMMUNICATION CLIMATE FOCUS AND THE VARIOUS VARIABLES**

After the statistics regarding the biographical data, conceptual continuums and items analysed had been presented, it was noted from the results obtained that there were significant differences in some of the tested variables pertaining to the respondents' communication behaviour and their perception of operational manager communication behaviour in relation to the six conceptual continuums. These findings are discussed in more detail in the following sections and summarised in Table 6.40.

### **6.5.1 The respondents' communication behaviour orientation**

The Cronbach's Alpha reliability coefficient statistic should be above 0.6 and preferably above 0.8. It was noted that all the professional nurse constructs delivered a Cronbach's Alpha score of 0.8, indicating a high reliability for all the professional nurse constructs. The mean scores for the professional nurse constructs were all above 4.0, indicating a more supportive communication orientation.

### **6.5.2 The respondents' perception of operational managers' communication orientation**

It was noted that all the operational manager constructs delivered a Cronbach's Alpha score of 0.8, indicating a high reliability for all the operational manager constructs. However, although all the mean scores for the operational manager constructs were above 4.0, these scores were lower than the mean scores for the professional nurse constructs. This result indicates that the perception respondents have of their operational manager's communication behaviour orientation (operational manager) is slightly less supportive than the perception they have of their own communication behaviour orientation (professional nurse).

### **6.5.3 Differences among the specific factors**

The analysis of variance, utilising a six-way ANOVA (with six independent variables) was calculated for the full model in order to test and compare the six independent factors simultaneously.

#### **6.5.3.1 Six-way ANOVA**

As stated previously, the ANOVA test determines the mean differences between two or more groups by comparing variability between groups with variability within groups (Burns & Grove 2009:505; Polit & Beck 2012:416-417). In this case a six-way ANOVA test was used where all six factors, as independent variables in the model could be tested simultaneously. This test applies because six independent variables (age; tenure; language; gender; hospital and ward/unit) are tested simultaneously. The F-test statistics of this ANOVA test are displayed in Table 6.38.

TABLE 6.38: F-TEST STATISTICS FOR THE FULL MODELS (N = 270)\*

|  |          | DF  | Sum of Squares | Mean Square | F      | Prob > F |
|--|----------|-----|----------------|-------------|--------|----------|
| PN: Evaluation-Description Q1-5        | Model    | 16  | 42.53430       | 2.65839     | 1.5208 | 0.0925   |
|  | Error    | 253 | 442.25400      | 1.74804     |        |          |
|  | C. Total | 269 | 484.78830      |             |        |          |
| PN: Control-Problem Orientation Q11-16 | Model    | 16  | 29.86527       | 1.86658     | 1.3943 | 0.1444   |
|  | Error    | 253 | 338.70716      | 1.33876     |        |          |
|  | C. Total | 269 | 368.57243      |             |        |          |
| PN: Strategy-Spontaneity Q23-28        | Model    | 16  | 54.95711       | 3.43482     | 1.3893 | 0.1469   |
|  | Error    | 253 | 625.50678      | 2.47236     |        |          |
|  | C. Total | 269 | 680.46389      |             |        |          |
| PN: Neutrality-Empathy Q35-39          | Model    | 16  | 59.13075       | 3.69567     | 1.6310 | 0.0613   |
|  | Error    | 253 | 573.26392      | 2.26587     |        |          |
|  | C. Total | 269 | 632.39467      |             |        |          |
| PN: Superiority-Equality Q45-50        | Model    | 16  | 61.41089       | 3.83818     | 1.6759 | 0.0515   |
|  | Error    | 253 | 579.43067      | 2.29024     |        |          |
|  | C. Total | 269 | 640.84156      |             |        |          |
| PN: Certainty-Provisionalism Q57-62    | Model    | 16  | 44.65209       | 2.79076     | 1.3507 | 0.1671   |
|  | Error    | 253 | 522.75490      | 2.06622     |        |          |
|  | C. Total | 269 | 567.40700      |             |        |          |
| OM: Evaluation-Description Q6-10       | Model    | 16  | 47.86086       | 2.99130     | 1.6842 | 0.0499   |
|  | Error    | 253 | 449.35766      | 1.77612     |        |          |
|  | C. Total | 269 | 497.21852      |             |        |          |
| OM: Control-Problem Orientation Q17-22 | Model    | 16  | 42.31090       | 2.64443     | 1.1142 | 0.3418   |
|  | Error    | 253 | 600.44672      | 2.37331     |        |          |
|  | C. Total | 269 | 642.75761      |             |        |          |
| OM: Strategy-Spontaneity Q29-34        | Model    | 16  | 64.88918       | 4.05557     | 1.4367 | 0.1248   |
|  | Error    | 253 | 714.19529      | 2.82291     |        |          |
|  | C. Total | 269 | 779.08447      |             |        |          |
| OM: Neutrality-Empathy Q40-44          | Model    | 16  | 63.33856       | 3.95866     | 1.4759 | 0.1087   |
|  | Error    | 253 | 678.61240      | 2.68226     |        |          |
|  | C. Total | 269 | 741.95096      |             |        |          |
| OM: Superiority-Equality Q51-56        | Model    | 16  | 61.40250       | 3.83766     | 1.7188 | 0.0436   |
|  | Error    | 253 | 564.89750      | 2.23280     |        |          |
|  | C. Total | 269 | 626.30000      |             |        |          |
| OM: Certainty-Provisionalism Q63-68    | Model    | 16  | 53.30667       | 3.33167     | 1.2202 | 0.2524   |
|  | Error    | 253 | 690.82388      | 2.73053     |        |          |
|  | C. Total | 269 | 744.13056      |             |        |          |

p < 0.05 level

PN = Professional nurse

OM = Operational manager

The F-test results displayed in Table 6.38 revealed that the p-values of four of the six constructs were above 0.05, indicating that the scores for these four constructs, when all the factors (age; tenure; language; gender; hospital and units/wards) are tested together as full models, are not significant.

The two constructs that delivered a p-value below 0.05 were the operational manager: Evaluation-Description continuum (p = 0.0499) and the operational manager: Superiority-Equality continuum (p-value = 0.0436). In these two constructs, the lower scores could indicate that there are significant differences between the factors (age; tenure; language; gender; hospital and unit/ward) when tested together as full models.

To determine in which of the factors (age; tenure; language; gender; hospital and unit/ward) the significant differences reside, full model Effect-tests were performed. The results of these tests are displayed in Table 6.39.

TABLE 6.39: EFFECT-TEST STATISTICS FOR THE FULL MODELS (N = 270)\*

|   | Factors   | N Parameter | Df | Sum of Squares | F      | Prob > F |
|---|-----------|-------------|----|----------------|--------|----------|
| PN: Evaluation-Description<br>Q1-5        | Age       | 4           | 4  | 5.300370       | 0.7580 | 0.5535   |
|   | Tenure    | 3           | 3  | 4.730850       | 0.9021 | 0.4407   |
|   | Language  | 3           | 3  | 9.046062       | 1.7250 | 0.1623   |
|   | Gender    | 1           | 1  | 0.567923       | 0.3249 | 0.5692   |
|   | Hospital  | 2           | 2  | 6.793014       | 1.9430 | 0.1454   |
|   | Unit/ward | 3           | 3  | 23.906940      | 4.5588 | 0.0039*  |
| PN: Control-Problem Orientation<br>Q11-16 | Age       | 4           | 4  | 4.001170       | 0.7472 | 0.5607   |
|   | Tenure    | 3           | 3  | 0.373918       | 0.0931 | 0.9638   |
|   | Language  | 3           | 3  | 7.931657       | 1.9749 | 0.1182   |
|   | Gender    | 1           | 1  | 0.982423       | 0.7338 | 0.3925   |
|   | Hospital  | 2           | 2  | 2.624370       | 0.9801 | 0.3767   |
|   | Unit/ward | 3           | 3  | 16.163211      | 4.0244 | 0.0080*  |
| PN: Strategy-Spontaneity<br>Q23-28        | Age       | 4           | 4  | 10.202990      | 1.0317 | 0.3914   |
|   | Tenure    | 3           | 3  | 3.731671       | 0.5031 | 0.6805   |
|   | Language  | 3           | 3  | 10.781971      | 1.4537 | 0.2277   |
|   | Gender    | 1           | 1  | 0.011334       | 0.0046 | 0.9461   |
|   | Hospital  | 2           | 2  | 4.832272       | 0.9773 | 0.3778   |
|   | Unit/ward | 3           | 3  | 29.581741      | 3.9883 | 0.0084*  |
| PN: Neutrality-Empathy<br>Q35-39          | Age       | 4           | 4  | 14.055236      | 1.5508 | 0.1881   |
|   | Tenure    | 3           | 3  | 2.811977       | 0.4137 | 0.7433   |
|   | Language  | 3           | 3  | 6.020142       | 0.8856 | 0.4491   |
|   | Gender    | 1           | 1  | 3.720570       | 1.6420 | 0.2012   |
|   | Hospital  | 2           | 2  | 3.520715       | 0.7769 | 0.4609   |
|   | Unit/ward | 3           | 3  | 28.037723      | 4.1247 | 0.0070*  |
| PN: Superiority-Equality<br>Q45-50        | Age       | 4           | 4  | 13.321283      | 1.4541 | 0.2167   |
|   | Tenure    | 3           | 3  | 7.406570       | 1.0780 | 0.3590   |
|   | Language  | 3           | 3  | 5.940191       | 0.8646 | 0.4600   |
|   | Gender    | 1           | 1  | 0.000325       | 0.0001 | 0.9905   |
|   | Hospital  | 2           | 2  | 4.746598       | 1.0363 | 0.3563   |
|   | Unit/ward | 3           | 3  | 35.147890      | 5.1156 | 0.0019*  |
| PN: Certainty-Provisionalism<br>Q57-62    | Age       | 4           | 4  | 13.133060      | 1.5890 | 0.1777   |
|   | Tenure    | 3           | 3  | 4.943202       | 0.7975 | 0.4963   |
|   | Language  | 3           | 3  | 4.130570       | 0.6664 | 0.5734   |
|   | Gender    | 1           | 1  | 0.560267       | 0.2712 | 0.6030   |
|   | Hospital  | 2           | 2  | 4.942823       | 1.1961 | 0.3041   |
|   | Unit/ward | 3           | 3  | 20.886383      | 3.3695 | 0.0192*  |
| OM: Evaluation-Description<br>Q6-10       | Age       | 4           | 4  | 8.124462       | 1.1436 | 0.3365   |
|   | Tenure    | 3           | 3  | 5.242453       | 0.9839 | 0.4009   |
|   | Language  | 3           | 3  | 11.551519      | 2.1679 | 0.0923   |
|   | Gender    | 1           | 1  | 0.096487       | 0.0543 | 0.8159   |
|   | Hospital  | 2           | 2  | 3.532513       | 0.9944 | 0.3714   |
|   | Unit/ward | 3           | 3  | 23.995053      | 4.5033 | 0.0042*  |
| OM: Control-Problem Orientation<br>17-22  | Age       | 4           | 4  | 9.802766       | 1.0326 | 0.3909   |
|   | Tenure    | 3           | 3  | 6.779968       | 0.9523 | 0.4159   |
|   | Language  | 3           | 3  | 3.275337       | 0.4600 | 0.7105   |
|   | Gender    | 1           | 1  | 2.046399       | 0.8623 | 0.3540   |
|   | Hospital  | 2           | 2  | 6.781968       | 1.4288 | 0.2415   |
|   | Unit/ward | 3           | 3  | 15.950370      | 2.2402 | 0.0841   |
| OM: Strategy-Spontaneity<br>Q29-34        | Age       | 4           | 4  | 13.041851      | 1.1550 | 0.3313   |
|   | Tenure    | 3           | 3  | 7.177992       | 0.8476 | 0.4690   |
|   | Language  | 3           | 3  | 10.465629      | 1.2358 | 0.2972   |
|   | Gender    | 1           | 1  | 3.453703       | 1.2235 | 0.2697   |
|   | Hospital  | 2           | 2  | 2.638024       | 0.4673 | 0.6273   |
|   | Unit/ward | 3           | 3  | 29.417141      | 3.4736 | 0.0167*  |
| OM: Neutrality-Empathy<br>Q40-44          | Age       | 4           | 4  | 13.075354      | 1.2187 | 0.3033   |
|   | Tenure    | 3           | 3  | 2.059194       | 0.2559 | 0.8571   |
|   | Language  | 3           | 3  | 11.683131      | 1.4519 | 0.2282   |
|   | Gender    | 1           | 1  | 2.286579       | 0.8525 | 0.3567   |
|   | Hospital  | 2           | 2  | 4.232361       | 0.7890 | 0.4554   |
|   | Unit/ward | 3           | 3  | 30.628762      | 3.8063 | 0.0107*  |
| OM: Superiority-Equality<br>Q51-56        | Age       | 4           | 4  | 17.122443      | 1.9172 | 0.1080   |
|   | Tenure    | 3           | 3  | 3.864727       | 0.5770 | 0.6306   |
|   | Language  | 3           | 3  | 3.592231       | 0.5363 | 0.6578   |
|   | Gender    | 1           | 1  | 0.024846       | 0.0111 | 0.9161   |
|   | Hospital  | 2           | 2  | 5.991526       | 1.3417 | 0.2633   |
|   | Unit/ward | 3           | 3  | 33.226416      | 4.9604 | 0.0023*  |
| OM: Certainty-Provisionalism<br>Q63-68    | Age       | 4           | 4  | 15.997716      | 1.4647 | 0.2134   |
|   | Tenure    | 3           | 3  | 5.752999       | 0.7023 | 0.5514   |
|   | Language  | 3           | 3  | 1.549464       | 0.1892 | 0.9037   |
|   | Gender    | 1           | 1  | 0.068580       | 0.0251 | 0.8742   |
|   | Hospital  | 2           | 2  | 4.341108       | 0.7949 | 0.4527   |
|   | Unit/ward | 3           | 3  | 26.734375      | 3.2636 | 0.0220*  |

From the results of the Effect-tests on the full models displayed in Table 6.39 it can be deduced that when all the independent variables (age, tenure, language, gender, hospital and unit/ward) are tested together in one combined model, the same results are produced as with the one-way ANOVA testing (where only one independent variable is tested at a time), except for one variable. The variable 'unit/ward' delivered a significant difference throughout all the tested full models, consistently producing p-values lower than  $p < 0.05$ . This result could indicate that the respondents' communication behaviour orientation and their perception of the operational manager communication behaviour orientation might be highly dependent on which unit/ward the respondents were working in and that 'unit/ward' is a factor that requires consideration when planning a refocusing of communication climate within these particular three public hospitals.

#### 6.5.4 Conclusions on results on the tested variables/factors

After testing the variables/factors, results were obtained (as displayed in Table 6.40), from which the following conclusions were drawn:

- The average mean for all of the constructs was above 4.0 (see Tables 6.16 and 6.24);
- There were no significant differences found between the different categories of tested factors: age, tenure, language, gender and hospitals.
- The only statistically significant difference was found in the unit/ward factor.

**TABLE 6.40: RESULTS ON TESTED VARIABLES/FACTORS**

| Research Questions         | Variables/Factors  | Results   |
|----------------------------|--|---|
| <b>Research question 1</b> | <b>Professional nurse communication behaviour orientation</b>                | All mean scores were above 4.0. The results indicated that respondents had a supportive orientation (focus) of their own communication behaviour  |
| <b>Research question 2</b> | <b>Perception of operational manager communication behaviour orientation</b> | All mean scores were above 4.0. The results indicated that the perception respondents have of operational manager communication behaviour orientation is supportive. However, despite this supportive communication orientation (focus), the "operational manager" mean scores was lower overall than the "professional nurse" mean scores. |
| <b>Research question 3</b> | <b>Factor 1: Age</b>   | No significant differences found between and within the age groups of respondents pertaining to their communication orientation (focus)   |
|                            | <b>Factor 2: Tenure</b>  | No significant differences found between and within the tenure groups of respondents pertaining to their communication orientation (focus)  |
|                            | <b>Factor 3: Language</b>  | No significant differences found between and within the language groups of respondents pertaining to their communication orientation (focus)  |
|                            | <b>Factor 4: Gender</b>  | No significant differences found between and within the gender groups of respondents pertaining to their communication orientation (focus)  |
|                            | <b>Factor 5: Hospital</b>  | No significant differences found between and within the hospital groups of respondents pertaining to their communication orientation (focus)  |
|                            | <b>Factor 6: Unit/ ward</b>  | Significant differences were found between and within the units/wards groups of respondents pertaining to their communication orientation (focus), in especially the Medical and Administration units in relation to the other 'units/wards' groups.  |

## **6.6 CONCLUSION**

The results of the testing phase of the study were discussed in this chapter according to the following aspects:

- Analysis of the biographical data
- Reliability and validity of the instrument
- Statistics on items and the conceptual continuums

In the next chapter, guidelines will be developed towards a supportive communication climate in public hospitals, from the results of the study and the supportive literature as discussed in chapters 5 and 6.

## **CHAPTER 7**

### **DEVELOPMENT AND VALIDATION OF GUIDELINES TOWARDS A SUPPORTIVE COMMUNICATION CLIMATE IN PUBLIC HOSPITALS**

#### **7.1 INTRODUCTION**

In Chapter 6 the results of the study were discussed according to the following aspects:

- Analysing of the biographical data
- Reliability and validity of the measuring instrument (SDS)
- Statistics on items and the conceptual continuums

In this chapter, the guidelines that were developed towards a supportive communication climate in public hospitals from the results of the study and the supportive literature are discussed according to the following aspects:

- Development of guidelines
- Validation of guidelines
- Presentation of developed and validated guidelines
- Guidelines based on the results

#### **7.2 DEVELOPMENT OF THE GUIDELINES**

During the development of the guidelines, a process of logical reasoning was applied, whereby inferences or conclusions were drawn (Polit & Beck 2008:13). The researcher utilised both deductive and inductive reasoning during this process. The literature and quantitative data were used to reach concluding statements from which eight guidelines were proposed to address these statements. The proposed guidelines were sent to a Delphi panel of experts, consisting of communication experts, behavioural science experts and nursing management experts, to validate and make suggestions for improvement. This process was discussed in detail in Chapter 4.

### 7.3 VALIDATION OF THE GUIDELINES

Each of the purposively selected experts on the Delphi panel was provided with an electronic copy of the proposed guidelines, accompanied by a covering letter explaining the validation process, and a validation form. The panel of Delphi experts (consisting of twelve participants) were requested to validate the guidelines according to the validation criteria: clarity, comprehensiveness, applicability, adaptability, credibility and validity. All of the experts agreed to participate in the validation process (see Annexure G). The results of the validated guidelines are displayed in Table 7.1.

**TABLE 7.1: RESULTS OF THE DELPHI PANEL OF EXPERTS REGARDING THE VALIDATION OF THE GUIDELINES**

| Criteria          | Accepted with no suggested changes | Accepted with suggested changes | Not accepted | Comments from Delphi panel of experts  |
|-------------------|------------------------------------|---------------------------------|--------------|--|
| Clarity           | √                                  |                                 |              | <ul style="list-style-type: none"> <li>• Very clear</li> <li>• Some statements too theoretical though</li> </ul>                                     |
| Comprehensiveness | √                                  |                                 |              | <ul style="list-style-type: none"> <li>• Comprehensive</li> <li>• Not all professional nurses are defensive</li> </ul>                               |
| Applicability     |                                    | √                               |              | <ul style="list-style-type: none"> <li>• Cost implications not addressed</li> <li>• Difficult to implement in cost-sensitive environments</li> </ul> |
| Adaptability      |                                    | √                               |              | <ul style="list-style-type: none"> <li>• Possible financial constraints</li> <li>• Possible time constraints</li> </ul>                              |
| Credibility       | √                                  |                                 |              | <ul style="list-style-type: none"> <li>• Well presented</li> <li>• Once there is proper buy-in</li> </ul>  |
| Validity          | √                                  |                                 |              | <ul style="list-style-type: none"> <li>• Valid</li> </ul>  |

Reflected in the comments on these guidelines it is evident that the inputs obtained from the experts were varied (see Table 7.1). Most of the comments supported the evidence as provided in the concluding statements and indicated that the guidelines were clear and practical. A few experts mentioned that financial and time constraints might be a challenge to the implementation of the guidelines as adaptability and applicability criteria. Some experts suggested that the guidelines would have to be pilot tested in the practical setting. The guidelines were found to be valid, despite the few comments on adaptability and applicability.



## 7.4 PRESENTATION OF DEVELOPED AND VALIDATED GUIDELINES

Following the development of the guidelines, the suggestions of the Delphi panel of experts were incorporated in the said guidelines. The guidelines emerged from the research questions, as displayed in Table 7.2, which were all statistically tested, results obtained and conclusions drawn. One guideline was formulated on the basis of the conclusions for each of questions 1 and 2; and six guidelines were developed for question 3; one guideline for the conclusions drawn on each factor. A rationale was formulated for each guideline, followed by recommendations on the implementation of each guideline.

**TABLE 7.2: RESEARCH QUESTIONS AND RESULTING GUIDELINES**

|                            | Description of question  | Guideline          | Description of guideline   |
|----------------------------|--|--------------------|--|
| <b>Research question 1</b> | Respondents' communication behaviour relating to the six Gibb's conceptual continuums  | <b>Guideline 1</b> | Professional nurses as supportive communicators  |
| <b>Research question 2</b> | Perception of operational manager communication behaviour  | <b>Guideline 2</b> | Professional nurses perceive operational managers as supportive communicators                    |
| <b>Research question 3</b> | Specific factors influencing the communication behaviour of respondents and their perception of operational managers' communication behaviour relating to the conceptual continuums: |                    |  |
|                            | <b>Factor 1: Ages of respondents</b>   | <b>Guideline 3</b> | Professional nurses from all age groups as supportive communicators                              |
|                            | <b>Factor 2: Tenures of respondents</b>  | <b>Guideline 4</b> | All professional nurses, regardless of tenure (periods in hospital), as supportive communicators |
|                            | <b>Factor 3: Languages of respondents</b>  | <b>Guideline 5</b> | Professional nurses from all language groups as supportive communicators                         |
|                            | <b>Factor 4: Gender of respondents</b>   | <b>Guideline 6</b> | Professional nurses from both genders as supportive communicators                                |
|                            | <b>Factor 5: Institutions (public hospitals) of respondents</b>  | <b>Guideline 7</b> | Professional nurses from all institutions (public hospitals) as supportive communicators         |
|                            | <b>Factor 6: Types of units/wards of respondents</b>   | <b>Guideline 8</b> | Professional nurses from all types of unit/ward as supportive communicators                      |

## 7.5 GUIDELINES BASED ON CONCLUSIONS OF THE RESEARCH RESULTS

### 7.5.1 Research question 1: What is the communication behaviour orientation of the respondents with regard to the six Gibb's conceptual continuums?

From the conclusions drawn on the results obtained through the statistical tests conducted for research question 1, *respondents' communication behaviour orientation with regard to the six Gibb's conceptual continuums*, a guideline was formulated to address those attributes of a professional nurse that would enhance supportive communication behaviour. This guideline is based on the conclusions drawn, as displayed in Box 7.1.

#### BOX 7.1: SUMMARY OF CONCLUDING STATEMENTS ON RESPONDENTS' COMMUNICATION BEHAVIOUR ORIENTATION WITH REGARD TO THE CONCEPTUAL CONTINUUMS

- The results of the statistical tests conducted for research question 1 indicate that the researcher's informed expectations, based on theory (conceptual framework), are in line with the respondents' (professional nurses) communication behaviour orientation regarding the six constructs (conceptual continuums).
- No significant differences were found between the communication behaviour focus (orientation) of the respondents pertaining to the six constructs, and it was concluded that respondents viewed their own communication behaviour as supportive overall.
- The lowest mean score for the professional nurse communication behaviour constructs was found in the professional nurse: Superiority-Equality continuum (mean score = 4.55); representing a more defensive behaviour communication orientation.
- The professional nurses' communication behaviour construct that delivered the highest mean score was found in the professional nurse: Control-Problem Orientation continuum (mean score = 5.11); representing a more supportive communication behaviour orientation.

#### GUIDELINE 1: Professional nurses as supportive communicators

##### Rationale for the implementation of the guideline

With the correct mentoring and guidance, professional nurses can emulate and demonstrate the presumably supportive communication behaviour of operational managers, which in turn might elicit the same reciprocal communication behaviour from other professional nurses.

##### Recommendations on the implementation of the guideline

The recommendations for the implementation of guideline 1 are displayed in Table 7.3:

**TABLE 7.3: RECOMMENDATIONS FOR THE IMPLEMENTATION OF GUIDELINE 1**

|   | RECOMMENDATIONS  |
|---|--|
| <b>GUIDELINE 1: Professional nurses as supportive communicators</b> | <ul style="list-style-type: none"> <li>● <b>The National Department of Health should:</b> <ul style="list-style-type: none"> <li>○ Encourage all professional nurses in its employment, in all of its facilities, to adopt supportive communication behaviour;</li> <li>○ Establish a task team to design an action plan for the implementation of supportive communication behaviour in all of its facilities;</li> <li>○ Draw up a policy for the implementation of supportive communication behaviour in all of its facilities;</li> <li>○ Create opportunities for in-service training on supportive communication behaviour, through road-shows, exhibitions and training sessions; and</li> <li>○ Facilitate sessions on supportive communication behaviour training.</li> </ul> </li> <br/> <li>● <b>Nurse educators should:</b> <ul style="list-style-type: none"> <li>○ Locate and attend behaviour training, with special emphasis on supportive communication behaviour. A helpful method of <i>behaviour training</i> suggested by Snell and Bohlander (2010: 331-332) and Bezuidenhout (2014f:276) is <i>behaviour modelling</i>, which is a combination of various training methods. <i>Behaviour modelling</i> includes <i>learning points</i> (a sequence of behaviour to be taught), <i>modelling</i> (demonstration of learning points by a model manager), <i>practice and role-play</i> (trainees have to practise and role-play the behaviour demonstrated by the model manager) and <i>feedback and reinforcement</i> (the progress of the trainees is reinforced with praise and approval the more their behaviour becomes like that of the model manager);</li> <li>○ Equip themselves with the necessary skills to provide communication behaviour modelling/training;</li> <li>○ Identify the need for supportive communication behaviour modelling/training among nursing students, and among clinical nursing staff;</li> <li>○ Implement and apply the communication behaviour modelling/training with their nursing students;</li> <li>○ Train nursing students and clinical nursing staff in appropriate communication behaviour, because it is not enough to merely train them about the importance of communication (Clark &amp; Ahten 2012:16); and</li> <li>○ Assist with communication behaviour modelling/training in the practical settings.</li> </ul> </li> <br/> <li>● <b>Professional nurses should:</b> <ul style="list-style-type: none"> <li>○ Analyse their own communication behaviour more objectively and critically (focusing their attention more internally and less externally);</li> <li>○ Be willing to acknowledge that they too have communication behaviour challenges;</li> <li>○ Be willing to attend communication behaviour change training; all professional nurses in general could benefit from supportive communication skills training;</li> <li>○ Adopt supportive communication behaviour by attending supportive communication behaviour training; and</li> <li>○ Demonstrate their newly adopted supportive communication behaviour. “Positive comments engender positive feelings and positive feelings enhance connectivity [between employees in organisations, which in turn result in] organisations with positive communication patterns” (Lewis 2011:78).</li> <li>○ Learn basic face-to-face interpersonal communication skills despite modern communication devices that nurses have at their disposal, as nothing can replace human-to-human interaction;</li> <li>○ Learn to be tolerant with one another during the implementation of the suggested communication climate refocusing;</li> <li>○ Support one another during the implementation of a communication climate refocusing. The refocusing to a more supportive communication climate orientation will require a concerted effort from both the professional nurses and operational managers, who will be involved in the entire communication process, and</li> <li>○ Identify and highlight areas of improvement in a positive manner by describing the shortcomings rather than criticising or evaluating them.</li> </ul> </li> </ul> |

## 7.5.2 Research question 2: What are the respondents' perceptions of the operational managers' communication behaviour orientation with regard to the six Gibb's conceptual continuums?

From the conclusions drawn on the results obtained from the statistical tests conducted for research question 2, *respondents' perceptions of the operational managers' communication behaviour orientation with regard to the six Gibb's conceptual continuums*, a guideline was formulated that addresses those attributes of operational managers that would enhance supportive communication behaviour. This guideline is based on the conclusions drawn, as displayed in Box 7.2.

### **BOX 7.2: SUMMARY OF CONCLUDING STATEMENTS ON RESPONDENTS' PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR ORIENTATION WITH REGARD TO THE CONCEPTUAL CONTINUUMS**

- The conclusion from the results of the statistical tests performed for research question 2 is that the researcher's informed expectations, based on the Gibb's theory (conceptual framework), are in line with the respondents' perceptions of the operational managers' communication behaviour focus (orientation).
- From the results it can be deduced that the respondents, in contrast to their responses to research question 1, seem to have a more distinct perception of the operational managers' communication behaviour compared with their perception of their own communication behaviour.
- Although the respondents' perception of operational manager communication behaviour was more defensive, the overall communication behaviour focus (orientation) was still supportive in nature.
- The operational managers' communication behaviour constructs that delivered the lowest mean scores were the operational manager: Certainty-Provisionalism continuum (mean score = 4.12) and the operational manager: Strategy-Spontaneity continuum (mean score = 4.18); representing a more defensive communication orientation.
- This defensive orientation could possibly be ascribed to the current liberated social scenario in public hospitals, which is assumed to be more supportive in nature; in contrast to the social setting in most public institutions prior to 1994. It is, however, evident that professional nurse respondents tend to perceive operational managers as displaying a more defensive communication behaviour orientation.
- The operational managers' communication behaviour construct that delivered the highest mean score was found in the operational manager: Evaluation-Description continuum (mean score = 4.63); representing a more supportive communication orientation.
- Considering the mentioned results, it is clear that the respondents (professional nurses) tend to have an external locus of behavioural control, implying that they: are more comfortable with reflecting on others than on themselves, are more focused on the behaviour of others than on their own behaviour and might have a stronger external focus than internal focus.

**GUIDELINE 2: Professional nurses perceive operational managers as supportive communicators**

**Rationale for the implementation of the guideline**

The operational manager, as mentoring and role model to operational managers, might elicit the desired communication behaviour from operational managers through the role-modelling of supportive communication behaviour.

**Recommendations on the implementation of the guideline**

The recommendations for the implementation of guideline 2 are displayed in Table 7.4:

**TABLE 7.4: RECOMMENDATIONS FOR THE IMPLEMENTATION OF GUIDELINE 2**

|   | RECOMMENDATIONS  |
|---|--|
| <b>GUIDELINE 2: Professional nurses perceive operational managers as supportive communicators</b> | <ul style="list-style-type: none"> <li>● <b>Professional nurses should:</b> <ul style="list-style-type: none"> <li>○ Critically assess their perceptions regarding the communication behaviour of operational managers;</li> <li>○ Adapt their perceptions of the communication behaviour of operational managers to a more tolerant, accommodating and understanding perception; and</li> <li>○ Initiate upward communication spontaneously and not wait for prompting from operational managers.</li> </ul> </li> <br/> <li>● <b>Operational managers should:</b> <ul style="list-style-type: none"> <li>○ Become aware of their personal need for supportive communication behaviour as those responsible for the planning, implementation and evaluation of a climate refocus towards a more supportive communication climate (<i>inter alia</i>, the operational managers have to be trained in the finer aspects of supportive communication behaviour);</li> <li>○ Become aware of the need for supportive communication behaviour by professional nurses under their supervision and apply the process of communication in an effective way, because it is not only important <i>what</i> is communicated to the professional nurses but <i>how</i> it is communicated to them as well;</li> <li>○ Create a milieu that is evidence of a supportive communication climate, in an effort to counteract the defensive communication behaviour displayed by professional nurses;</li> <li>○ Provide training opportunities for professional nurses to attend supportive behaviour training in the form of workshops, seminars and behaviour modelling training; and</li> <li>○ Evaluate professional nurses for communication behaviour changes. Snell and Bohlander (2010:333 -336) state that trainees have to be evaluated as to whether they demonstrate a behavioural change after completing training programmes. It will be the task of operational managers to assess whether professional nurses demonstrate a behavioural change after completing communication training. However, the application of more open communication strategies must be in line with their communication skills (Meiring 2010:98) and abilities, and address the communicational needs of the professional nurse. Constant monitoring of the communication satisfaction of professionals by means of a monitoring system such as the Communication Satisfaction Questionnaire (Downs &amp; Hazen 1977) could act as an early warning system for operational managers to employ corrective measures.</li> </ul> </li> </ul> |

**7.5.3 Research question 3: How do specific factors, such as age, tenure (period in hospital), gender, language, institution (public hospital) and type of unit/ward influence the communication behaviour orientation of respondents and their perception of operational manager communication behaviour orientation with regard to the six conceptual continuums?**

**7.5.3.1 Factor 1: Ages of respondents**

From the conclusions drawn on the results obtained from the statistical testing of the factor: ***ages of respondents pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs***, a guideline was formulated that addresses those attributes of professional nurses and operational managers that will enhance supportive communication behaviour. This guideline is based on the conclusions drawn, as displayed in Box 7.3.

**BOX 7.3: SUMMARY OF CONCLUDING STATEMENTS ON RESPONDENTS' AGES PERTAINING TO THEIR COMMUNICATION BEHAVIOUR ORIENTATION AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR ORIENTATION**

- From the results it can be deduced that there were no significant differences between the different age groups of the respondents (professional nurses) pertaining to their communication behaviour orientation and their perception of the operational manager communication behaviour orientation, in terms of the six Gibb's constructs.
- The 41 to 50 years age group was the only group that delivered lower mean scores compared with the rest of the age groups tested. Therefore it can be concluded that the communication behaviour orientation of this senior group of professional nurses, who are in charge of patient care and the delegation of nursing care tasks to the more junior professional nurses, is more defensive than that of the other age groups.
- Despite a non-significant result, it is still important to include generational differences, (with specific reference to perceptual differences), during the compilation of the guidelines towards a supportive communication climate in public hospitals. In support of this statement, it seems that various researchers are unanimous in their conclusion that younger and older nurses have different perceptions of their work environments (Leiter et al 2010; Keepnews et al 2010).

**GUIDELINE 3: Professional nurses from all age groups as supportive communicators**

**Rationale for the implementation of the guideline**

Mentoring all generations of professional nurses in supportive communication behaviour might have the desired effect, as younger professional nurses often imitate the behaviour of older professional nurses.

**Recommendations on the implementation of the guideline**

The recommendations for the implementation of guideline 3 are displayed in Table 7.5:

**TABLE 7.5: RECOMMENDATIONS FOR THE IMPLEMENTATION OF GUIDELINE 3**

|  | RECOMMENDATIONS   |
|--|---|
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>GUIDELINE 3: Professional nurses from different age groups as supportive communicators</b></p> | <ul style="list-style-type: none"> <li>● <b>Each public hospital should:</b> <ul style="list-style-type: none"> <li>○ Focus on fair and equitable generational distribution of its nursing population in its departments and units;</li> <li>○ Allow nurses from different age and generational groups to socialise on a professional basis;</li> <li>○ Afford junior nurses the opportunity to learn from more experienced nurses.</li> </ul> </li> <br/> <li>● <b>Operational managers should:</b> <ul style="list-style-type: none"> <li>○ Become aware of the generational differences that exist among their nursing staff;</li> <li>○ Create platforms, such as climate meetings, where communication differences can be discussed; and</li> <li>○ Mediate in cases where communication behaviour differences cause conflict.</li> </ul> </li> <br/> <li>● <b>Professional nurses:</b> <ul style="list-style-type: none"> <li>○ Should be encouraged to accommodate each other and extend their supportive communication behaviour across all generational levels;</li> <li>○ Senior professional nurses in particular should be more accommodating towards junior professional nurses and make an effort to understand, rather than evaluate, the communication behaviour of their juniors; and</li> <li>○ Junior professional nurses should be more tolerant towards the communication behaviour of more senior professional nurses.</li> </ul> </li> </ul> |

**7.5.3.2 Factor 2: Tenure of respondents**

From the conclusions drawn on the results obtained from the statistical testing of the factor: ***respondents’ tenure (period in hospitals) pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, in terms of the six constructs***, a guideline was formulated that addresses those attributes of both the professional nurses and operational managers that would enhance supportive communication behaviour. This guideline is based on the conclusions drawn, as displayed in Box 7.4.

**BOX 7.4: SUMMARY OF CONCLUDING STATEMENTS ON RESPONDENTS' TENURE (PERIOD IN HOSPITALS) PERTAINING TO THEIR COMMUNICATION BEHAVIOUR ORIENTATION AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR ORIENTATION**

- No significant differences were found between the tenure of respondents and their communication behaviour orientation and their perception of operational manager communication behaviour orientation.
- According to the results, junior professional nurses have the most supportive communication behaviour orientation and senior professional nurses have the most defensive communication climate orientation. Noteworthy is that senior professional nurses are the immediate supervisors and role models to the younger professional nurses. In this way defensive communication behaviour could become embedded in public hospitals due to the potential transfer of negative communication behaviour to younger professional nurses.

**GUIDELINE 4: All professional nurses, regardless of tenure (period in hospitals), as supportive communicators**

**Rationale for the implementation of the guideline**

The professional maturing of professional nurses over time will create a positive, supportive climate and benefit inter-collegial and multi-professional relations and ultimately also interpersonal relations with patients. By the same token, the more they interact with other professionals, the more perfected their application of communication skills should become.

**Recommendations on the implementation of the guideline**

The recommendations for the implementation of guideline 4 are displayed in Table 7.6:

**TABLE 7.6: RECOMMENDATIONS FOR THE IMPLEMENTATION OF GUIDELINE 4**

|   | RECOMMENDATIONS   |
|---|---|
| <b>GUIDELINE 4: Professional nurses with different tenures (periods in hospitals) as supportive communicators</b> | <ul style="list-style-type: none"> <li>• <b>Professional nurses should:</b> <ul style="list-style-type: none"> <li>○ Be encouraged to view professional maturing (with regard to communication behaviour) as an essential part of their professional socialisation, and</li> <li>○ Make efforts to mature in their supportive communication behaviour, over time.</li> </ul> </li> <li>• <b>Operational managers should:</b> <ul style="list-style-type: none"> <li>○ Monitor the professional maturing and professional socialisation of the professional nurses under their supervision;</li> <li>○ Identify areas of professional non-maturing (with specific reference to communication behaviour), and</li> <li>○ Address areas of professional non-maturing (defensive communication behaviour).</li> </ul> </li> </ul> |



### 7.5.3.3 Factor 3: Languages of respondents

From the conclusions drawn on the results obtained from the statistical testing of the factor: *languages of respondents pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs*, a guideline was formulated that addresses those attributes of both professional nurses and operational managers that would enhance supportive communication behaviour. This guideline is based on the conclusions drawn, as displayed in Box 7.5.

**BOX 7.5: SUMMARY OF CONCLUDING STATEMENTS ON RESPONDENTS' LANGUAGES PERTAINING TO THEIR COMMUNICATION BEHAVIOUR ORIENTATION AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR ORIENTATION**

- No significant difference was found between the language of respondents and their communication behaviour orientation and perception of operational manager communication behaviour orientation.
- Only the Afrikaans group had a slightly more defensive communication behaviour orientation than the rest of the language groups.
- The lingua franca of all South African public hospitals governed by the National Department of Health is English; however, the majority of the employees functioning in these institutions speak one of the other official South African home languages.

**GUIDELINE 5: Professional nurses from all language groups as supportive communicators**

#### **Rationale for the implementation of the guideline**

Implementing this guideline could address defensive communication behaviour formed by the language barrier created by nurses having to converse in a second language.

#### **Recommendations on the implementation of the guideline**

The recommendations for the implementation of guideline 5 are displayed in Table 7.7:

**TABLE 7.7: RECOMMENDATIONS FOR THE IMPLEMENTATION OF GUIDELINE 5**

|  | RECOMMENDATIONS   |
|--|---|
| <b>GUIDELINE 5: Professional nurses from different language groups as supportive communicators</b> | <ul style="list-style-type: none"> <li>● <b>Each public hospital should:</b> <ul style="list-style-type: none"> <li>○ Ensure that all its professional nurses are familiar with the lingua franca of the National Department of Health and the institution;</li> <li>○ Establish the level of English proficiency of its professional nurses (through methods such as SWOT analysis and performance management systems);</li> <li>○ Identify shortcomings in language proficiency of its professional nurses; and</li> <li>○ Address and redress the inconsistencies in the language skills of its professional nurses.</li> </ul> </li> <br/> <li>● <b>Operational managers should:</b> <ul style="list-style-type: none"> <li>○ Become aware of, and be sensitive to the language deficits of professional nurses;</li> <li>○ Identify professional nurses with language proficiency deficits;</li> <li>○ Establish the need for English proficiency training among professional nurses;</li> <li>○ Have some knowledge and understanding of Nguni and Sotho languages;</li> <li>○ Organise English proficiency training at the hospital (as in-service training); and</li> <li>○ Accommodate the schedules of professional nurses to allow them to attend English proficiency training.</li> </ul> </li> <br/> <li>● <b>Professional nurses should:</b> <ul style="list-style-type: none"> <li>○ Be encouraged to become aware of their level of English proficiency;</li> <li>○ Acknowledge when they have a language deficit;</li> <li>○ Be willing to address and redress their language deficits;</li> <li>○ Adopt a supportive communication behaviour attitude; and</li> <li>○ Display supportive communication behaviour through their language proficiency.</li> </ul> </li> </ul> |

**7.5.3.4 Factor 4: Gender of respondents**

From the conclusions drawn on the results obtained from the statistical testing of the factor: ***gender of respondents pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs***, a guideline was formulated that addresses the attributes of professional nurses and operational managers that would enhance supportive communication behaviour. This guideline is based on the conclusions drawn, as displayed in Box 7.6.

**BOX 7.6: SUMMARY OF CONCLUDING STATEMENTS ON THE RESPONDENTS' GENDER RELATED TO THEIR COMMUNICATION BEHAVIOUR ORIENTATION AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR ORIENTATION**

- No significant differences were found between the gender of respondents and their communication behaviour orientation and perception of operational manager communication behaviour orientation. Only the operational manager: professional nurse: Neutrality-Empathy and operational manager: Strategy-Spontaneity continuums delivered a slightly defensive communication behaviour orientation.
- The results indicated that male respondents perceive their communication behaviour orientation slightly more defensively than female respondents.
- However, a slight statistical difference was found between the communication behaviour orientation of male respondents and that of female respondents. The mean scores for the male respondents were lower with regard to a supportive communication behaviour orientation. A possible rationale for this slight difference between the scores of males and females could be the fact that the nursing profession is associated with and dominated by females (Moodley 2011:71; SANC 2014).
- Male professional nurses may perceive their communication differently from their female colleagues. However, this view cannot be generalised and it might even be contradictory to other studies, as evidenced by a study conducted by Marini (2007) among staff members at three Malaysian universities. In this study it was found that male staff perceived the organisational climate in general to be more favourable than their female counterparts. Furthermore, culture as a phenomenon affects nursing care among cultural groups (Giger & Davidhizar 2012:20-35), and this may play a crucial role in the results that indicated that the male respondents (professional nurses) had a more defensive communication climate focus. The cultural issues that might be involved could include the paternalistic and often chauvinistic role that males play in society at large. Nursing is a female dominated profession, and males might experience this situation as indefensible and oppressive. Male professional nurses might therefore react against the dynamics of this state of affairs in a more defensive way. It is possible, in such a situation, that this reaction of male professional nurses may progressively increase, and with it also their perception of the nursing practice environment as a defensive communication climate. For a profession that is already experiencing a shortage of male professional nurses, this situation could have devastating consequences. It is common belief that woman possess the ability to be compassionate and share emotions without stigmatisation or labelling (Brown 2009:127), and men do not. Reinecke (2014:95) supports this view by stating that there is 'awkwardness with the [male] nurse and his caring capacity', as stereotypically the role of nurses is fulfilled by females (Reinecke 2014:98). If this is the case, it is possible that male nurses could feel frustrated and unrecognised as compassionate carers and communicators.
- Another possible explanation for the significant differences between males and females could be embedded in the fact that males communicate in different ways from females (Grant & Borchers 2008:267-270; Steinberg 2007:152-153; Steinberg & Angelopulo 2015:90-91). A study by Holmstrom (2009) suggests that communication values of gender (by men and women) are based on whom they are interacting with, whether it is someone of the same or the opposite gender.

**GUIDELINE 6: Professional nurses from both genders as supportive communicators**

**Rationale for the implementation of the guideline**

As soon as all professional nurses (male and female) have acquired supportive communication behavioural skills, it is expected that the potential for gender-based miscommunication in the nursing units of public hospitals will decrease.

**Recommendations on the implementation of the guideline**

The recommendations for the implementation of guideline 6 are displayed in Table 7.8:

**TABLE 7.8: RECOMMENDATIONS FOR THE IMPLEMENTATION OF GUIDELINE 6**

|  | RECOMMENDATIONS  |
|--|--|
| <b>GUIDELINE 6: Professional nurses from different genders as supportive communicators</b> | <ul style="list-style-type: none"> <li>● <b>Each Public hospital should:</b> <ul style="list-style-type: none"> <li>○ Become aware of potential gender-based verbal incivility in all departments/units in its health care service;</li> <li>○ Exercise a stand against gender-based verbal incivility; and</li> <li>○ Address gender-based verbal incivility among its professional nurses with corrective action and communication behaviour training.</li> </ul> </li> <br/> <li>● <b>Male professional nurses should:</b> <ul style="list-style-type: none"> <li>○ Realise that although cultural practices have to be respected in the workplace, it is essential that such respect does not infringe on the rights and needs of the patient;</li> <li>○ Separate their masculinity from their role as professional nurses and learn and respect the social norms of the nursing profession;</li> <li>○ Adapt their communication style from a direct and abrupt one to a more descriptive style, to accommodate female colleagues, and</li> <li>○ Use respectful language in all situations towards all other colleagues within the public hospital setting.</li> </ul> </li> <br/> <li>● <b>Female professional nurses should:</b> <ul style="list-style-type: none"> <li>○ Realise that although males might have cultural rights, the first responsibility of all professional nurses is to respect the needs and rights of patients;</li> <li>○ Look beyond the boundaries of culture and cultural practices, and exercise their communication in an assertive manner, and</li> <li>○ Use respectful language in all situations towards all other colleagues (irrespective of whether male or female) within the public hospital setting.</li> </ul> </li> </ul> |

**7.5.3.5 Factor 5: Institutions (public hospitals) of respondents**

From the conclusions drawn on the results obtained from the statistical testing of the factor: ***institutions (public hospitals) of respondents pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs***, a guideline was formulated that addresses those attributes of both the professional nurses and operational managers that would enhance supportive communication behaviour. This guideline is based on the conclusions drawn, as displayed in Box 7.7.

**BOX 7.7: SUMMARY OF CONCLUDING STATEMENTS ON THE RESPONDENTS' PUBLIC HOSPITAL PERTAINING TO THEIR COMMUNICATION BEHAVIOUR ORIENTATION AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR ORIENTATION**

- The results indicate an overall supportive communication behaviour orientation; however, the respondents from hospital C had a slightly more supportive communication behaviour orientation than those from hospitals A and B. It is evident that a refocus is still required in hospitals A and B.
- The more supportive communication behaviour orientation of the respondents from hospital C compared with that of both hospital A and B could indicate that the professional nurses from hospital C have already made a successful communication behaviour refocus from a defensive communication orientation to a supportive communication behaviour orientation.

**GUIDELINE 7: Professional nurses in all public hospitals as supportive communicators**

The public image of nursing is very important. Therefore it will be to the benefit of all professional nurses, operational managers, other multi-professional team members and especially patients and their families if defensive communication behaviour is eradicated from all public hospitals and supportive communication behaviour phased in.

**Rationale for the implementation of the guideline**

Once the National Department of Health and Gauteng Department of Health have adopted supportive communication behaviour as one of their core standards, it could be drafted as a policy and rolled out to all affiliated health care stakeholders, including public hospitals, for implementation.

**Recommendations on the implementation of the guideline**

The recommendations for the implementation of guideline 7 are displayed in Table 7.9:

**TABLE 7.9: RECOMMENDATIONS FOR THE IMPLEMENTATION OF GUIDELINE 7**

|  | RECOMMENDATIONS   |
|--|---|
| <b>GUIDELINE 7: Professional nurses from different institutions (public) hospitals as supportive communicators</b> | <ul style="list-style-type: none"> <li>• <b>The National Department of Health and Gauteng Department of Health should:</b> <ul style="list-style-type: none"> <li>○ Adopt supportive communication behaviour as a national core standard for all of their affiliated health care stakeholders and facilities in all nine provinces (including Gauteng); and</li> <li>○ Draw up and roll out a provincial policy (in line with national policy) on the implementation and use of supportive communication behaviour in all of their health care facilities.</li> </ul> </li> <li>• <b>Each public hospital should:</b> <ul style="list-style-type: none"> <li>○ Develop an organisational policy, from the National Department of Health (national) and Gauteng Department of Health (provincial) policies on supportive communication behaviour;</li> <li>○ Implement the newly developed policy in all units/departments and wards;</li> <li>○ Monitor the communication behaviour of professional nurses and</li> <li>○ Address and redress any identified defensive communication behaviour through its performance management systems.</li> </ul> </li> </ul> |

### 7.5.3.6 **Factor 6: Types of unit/ward of respondents**

From the conclusions drawn on the results obtained from the statistical testing of the factor: **types of unit/ward of respondents pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs**, a guideline was formulated that addresses those attributes of both the professional nurses and operational managers that would enhance supportive communication behaviour. This guideline is based on the conclusions drawn, as displayed in Box 7.8.

#### **BOX 7.8: SUMMARY OF CONCLUDING STATEMENTS ON THE RESPONDENTS' TYPES OF UNITS/WARDS PERTAINING TO THEIR COMMUNICATION BEHAVIOUR ORIENTATION AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR ORIENTATION**

- The results indicate a significant difference between the different units/wards that respondents are functioning in pertaining to their communication behaviour orientation and perception of their operational manager's communication behaviour orientation. ‘
- A significant difference was found with regard to the mean scores of the Medical unit, compared with the mean scores of the other tested wards/units that respondents are functioning in (see t-test results - Annexure L). The Medical unit delivered the lowest mean score, indicating a more defensive communication climate orientation. The ‘Medical unit’ delivered a mean score below 4.0 in two of the continuums, namely the operational manager: Strategy-Spontaneity continuum (mean score = 3.96) and the operational manager: Certainty-Provisionalism continuum (mean score = 3.77).
- Testing the ‘unit/ward’ groups within some of the groups delivered different scores. The ‘Administration unit/ward’ group consistently had higher mean scores than the mean scores of the rest of the unit/ward groups, throughout all the constructs. By contrast, the ‘Medical unit/ward’ group consistently delivered lower mean scores than the rest of the groups, throughout all of the tested constructs. The reason for this significant difference is unknown, but this result may indicate that the communication focus of professional nurses (whether it will be supportive or defensive) could be dependent on the type of unit/ward they are functioning in.

#### **GUIDELINE 8: Professional nurses from all different types of unit/ward as supportive communicators**

##### **Rationale for the implementation of the guideline**

Once professional nurses can apply their supportive communication behaviour skills in all units/wards in public hospitals, this will create a harmonious work environment for all and ensure that the patients experience a harmonious health care journey as they are transferred between units/wards during their hospital stay.

**Recommendations on the implementation of the guideline**

The recommendations for the implementation of guideline 8 are displayed in Table 7.10:

**TABLE 7.10: RECOMMENDATIONS FOR THE IMPLEMENTATION OF GUIDELINE 8**

|  | RECOMMENDATIONS   |
|--|---|
| GUIDELINE 8: Professional nurses from different types of units/wards as supportive communicators | <ul style="list-style-type: none"> <li>● <b>Nurse educators should:</b> <ul style="list-style-type: none"> <li>○ Incorporate the implementation of the supportive communication policies in their clinical curriculum for all student nurses performing their practical training component in public hospitals, by validating the importance of professional behaviour (Clark &amp; Ahten 2012:16);</li> <li>○ Monitor the use of supportive communication behaviour among their students and qualified professional nurses, in the different nursing units/wards, as the students rotate through these units/wards during their practical training; and</li> <li>○ Address and correct defensive communication behaviour in identified units/wards.</li> </ul> </li> <br/> <li>● <b>Operational managers should:</b> <ul style="list-style-type: none"> <li>○ Ensure the implementation and monitor the practice of the hospital policy on supportive communication behaviour in all units/wards of public hospitals, by using zero tolerance on poor communication behaviour (Clark &amp; Ahten 2012:16); and</li> <li>○ Guide professional nurses in the practice of supportive communication behaviour by incorporating it during all unit/ward rounds, meetings and orientation of new staff.</li> </ul> </li> <br/> <li>● <b>Professional nurses should:</b> <ul style="list-style-type: none"> <li>○ Be aware that communication behaviour does differ from unit/ward to unit/ward, depending on type and function;</li> <li>○ Retain their supportive communication behaviour skills even if they have to adapt to the type and function of a unit/ward and</li> <li>○ Implement their supportive communication behaviour skills in all units/wards.</li> </ul> </li> </ul> |

**7.6 CONCLUSION**

This chapter presented a discussion on the development and validation of guidelines to support the refocusing of communication to achieve a supportive communication climate in public hospitals. The supporting literature and data obtained during the qualitative analysis assisted the researcher in formulating these guidelines. The Delphi panel experts were requested to validate the guidelines according to criteria of clarity, comprehensiveness, applicability, adaptability, credibility and validity. The suggestions from the Delphi panel experts (see Annexure G) were incorporated into the guidelines.

In the next, final, chapter, a summary of the study is presented, conclusions are drawn and the recommendations, limitations of the study and the attainment of the research objectives are discussed.

## CHAPTER 8

### CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

#### 8.1 INTRODUCTION

In Chapter 7 the guidelines for the development of a supportive communication climate in public hospitals were discussed. This chapter presents a discussion of the purpose, research design, method and conclusions of the study. The limitations of the study are discussed and recommendations for further research, practice and nursing management are suggested.

#### 8.2 PURPOSE OF THE STUDY

The purpose of the study was to assess the communication climate focus of professional nurses, pertaining to the communication behaviour orientation of professional nurses and their perception of the communication behaviour orientation of their operational managers through the development and testing of a quantitative measurement instrument based on the Gibb's Defensive Communication Climate Paradigm (1961). The six conceptual continuums contained in the Gibb's model include the Evaluation-Description, Control-Problem-Oriented, Strategy-Spontaneity, Neutrality-Empathy, Superiority-Equality and Certainty-Provisionalism conceptual continuums.

#### 8.3 RESEARCH DESIGN AND METHOD

The study consisted of a developmental and a testing phase. The reason for selecting this method research design was that it could best answer the set research questions:

- What is the communication behaviour orientation of the respondents with regard to the six Gibb's conceptual continuums?
- What are the respondents' perceptions of the operational managers' communication behaviour orientation with regard to the six Gibb's conceptual continuums?
- How do specific factors, such as age, tenure (period in hospitals), gender, language, institution (public hospital) and type of unit/ward, influence respondents' communication behaviour orientation and the respondents' perceptions of the operational managers' communication behaviour orientation with regard to the six Gibb's constructs?



### **8.3.1 Phase One: Developmental phase**

During the developmental phase, the researcher formulated concepts from the six conceptual continuums (constructs) of Gibb's Defensive Communication Climate Paradigm (1961). Expanding on and substantiating these empirical concepts and constructs provided a framework from which items were developed for the measuring instrument. During the literature study, the concept of *Communication Climate* was discussed in detail.

Prior to the empirical study, a pre-test study was conducted to pre-test the instrument. A sampling design using a simple, random sample was implemented. This pre-test study proved a very important part of the study, as it enabled problem areas to be detected and modified.

During the developmental phase, data were analysed by means of Cronbach's Alpha reliability analysis. Thereafter, the items incorporated in the instrument could serve as criteria against which the communication climate focus of the professional nurses was assessed. The instrument thus provided a scientific foundation to assess the communication climate focus of the professional nurses, which may range from defensive (negative) to supportive (positive).

### **8.3.2 Phase Two: Testing phase**

During the testing phase, a probability sampling design was implemented and a simple, random sample used. During the testing phase, data analysis was done by means of descriptive and inferential methods using the Statistical Analysis System (SAS) version 12. Furthermore, the factors pertaining to the biographical detail versus the six conceptual continuums, formulated in Chapter 4, were statistically tested and the results presented in Chapter 6 (see sections 6.5.1.1, 6.5.1.2).

### **8.3.3 Development and validation of guidelines**

The development and validation of guidelines to support professional nurses in creating a supportive communication climate in public hospitals was the final objective for the study. This objective was achieved after the analysis of the data.

From the analysed data, conclusions were drawn and guidelines drafted. A set of eight guidelines, with recommendations for implementation, was developed and validated by the Delphi panel of experts.

## **8.4 CONCLUSIONS OF THE STUDY**

Conclusions were firstly drawn from the analysed data on the reliability of the newly developed measuring instrument, and secondly from the three research questions with regard to the communication behaviour orientation of the professional nurse and the perception that the professional nurse has of the operational manager's communication behaviour orientation, within the framework of the six Gibbs' bipolar conceptual continuums. Finally, the conclusions were presented as concluding statements for the validated guidelines (see Chapter 7).

### **8.4.1 Conclusions on the developmental phase**

From the literature review conducted on the communication climate and the Gibb's Defensive Communication Climate Paradigm (1961), in the developmental phase, empirical concepts and constructs emerged that were validated by a Delphi panel of experts and used to compile a questionnaire.

Due to the dichotomous nature of the study, only two poles were allowed in the questionnaire, namely a defensive communication behaviour pole and a supportive communication behaviour pole. Two loci of focus were incorporated in the questionnaire, namely the perception of the professional nurses regarding their own communication behaviour orientation, and secondly the perception of the professional nurses pertaining to the communication behaviour orientation of their operational managers.

### **8.4.2 Conclusions on the testing phase**

The conclusions on the testing phase were drawn from the results obtained from the descriptive and inferential statistics performed on the newly developed measuring instrument and the three research questions. The emphasis of the study was quantitative in nature and therefore the conclusions will also be discussed in quantitative form.

#### **8.4.2.1 Conclusions on the reliability of the measuring instrument**

It is important to note that the instrument is only in its developmental stage and that further research is important to enhance the validity and reliability thereof. As the perfection of a research instrument takes many years, it is essential that researchers (in addition to this researcher) embark on this perfection process. Future researchers should consider the possibility that one of the other measuring scales suggested by the researcher during the developmental phase could have delivered more sensitive, discriminatory results, when they themselves embark on the endeavour to perfect these measuring scales. However, what is certain is that this instrument has to be further developed to create an interpersonal, group and organisational foundation for public hospitals on which they can model their supportive communication climates.

#### **8.4.2.2 Conclusions on the research questions**

From the analyses of the research questions, conclusions could be drawn with regard to the communication behaviour of the professional nurse and the perception that the professional nurse has regarding the communication behaviour of the operational manager.

Research question 1: *What is the communication behaviour orientation of the respondents with regard to the six Gibb's conceptual continuums?*

The conclusion drawn from the results of the statistical tests is that the respondents appear to perceive their own communication behaviour orientation as supportive overall, regarding the different items and conceptual continuums.

Research question 2: *What are the respondents' perceptions of the operational managers' communication behaviour orientation with regard to the six Gibb's conceptual continuums?*

The conclusion drawn from the results of the statistical tests conducted is that the respondents, in contrast to their reaction to research question 1, seemed to have a more distinct perception of operational managers' communication behaviour orientation than they have of their own communication behaviour orientation pertaining to the six Gibb's conceptual continuums.

This conclusion is contradictory to the respondents' perception of their own communication behaviour orientation as supportive, possibly indicating that the professional nurses have an external locus of control and are more aware of the defensive communication behaviour of their operational managers than of their own.

*Research question 3: How do specific factors, such as age, tenure (period in hospitals), gender, language, institution (public hospital) and type of unit/ward, influence the respondents' communication behaviour orientation and the respondents' perceptions of the operational managers' communication behaviour orientation with regard to the six Gibbs' conceptual continuums?*

Conclusions were drawn on the factors that could potentially have an influence on the communication behaviour orientation of the respondents:

Factor 1 investigated respondents' ages and their communication behaviour orientation and perception of operational manager communication behaviour orientation, in terms of the conceptual continuums. The conclusion drawn from the results is that there was no significant difference between the different age groups of the respondents pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation.

Factor 2 investigated the respondents' tenure (period in hospitals) on their communication behaviour orientation and perception of operational manager communication behaviour orientation, in relation to the conceptual continuums. The conclusion drawn from the results is that there was no significant difference between the respondents' tenure in the hospitals pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation.

Factor 3 investigated different languages and the respondents' communication behaviour orientation and perception of operational manager communication behaviour orientation, relating to the six conceptual continuums. The conclusion drawn from the results is that there were no significant differences between the different language groups of the respondents pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation.

Factor 4 investigated respondents' gender and communication behaviour orientation and perceptions of operational manager communication behaviour orientation, pertaining to the six conceptual continuums. The conclusion drawn from the results is that there were no significant differences between the different gender of the respondents pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation.

Factor 5 investigated the different institutions (public hospitals) of the respondents and their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, in relation to the six conceptual continuums. The conclusion drawn from the results is that there were no significant differences between the communication behaviour orientation and perceptions of operational manager communication behaviour orientation of respondents from the different hospitals.

Factor 6 investigated the different types of unit/ward that respondents function in and their communication behaviour orientation and perceptions of operational manager communication behaviour orientation, with regard to the six constructs. The conclusion drawn from the results is that there was a significant difference between the respondents in different units/wards pertaining to their communication behaviour orientation and perceptions of operational manager communication behaviour orientation. This conclusion is echoed by other studies conducted on other types of nursing unit, such as Intensive Care Units (Runkel 2013), Operating Room (Stow 2012) and Medical/ Surgical Units (Rasetsoke 2012).

### **8.4.3 Guideline formulation from the drawn conclusions**

The conclusions drawn from the analysed data formed the basis for the guidelines aiming to create a supportive communication climate in public hospitals. Eight guidelines were developed, based on the research questions and the literature. The guidelines propose suggestions to the National Department of Health, the Gauteng Department of Health, the public hospitals, the operational managers and the professional nurses. The guidelines were discussed in Chapter 7 and the recommendations for the implementation of the guidelines displayed in Tables 7.3 to 7.8.

## **8.5 LIMITATIONS OF THE STUDY**

The limitations applicable to this study include the Hawthorne effect, population and sample and the use of the collective term *African languages*.

### **8.5.1 The Hawthorne effect**

The definition of the Hawthorne effect, according to Brink et al (2012:212), Burns and Grove (2009:36-37) and Polit and Beck (2010:556), is the effect on the dependent variable caused by the respondents' awareness that they are participants under study. It can therefore be deduced that, although it is assumed that the respondents answered the questions in the questionnaires with honesty and integrity, the mere fact that the respondents knew that they were being studied may have led them to answer the questions in a way which they perceived as being more socially desirable, and not really as they perceived or felt about them. It is even possible that the respondents provided answers which they thought the researcher expected of them.

### **8.5.2 Population and sample**

The study was limited by having a small and homogeneous population and sample, as professional nurses from only three public hospitals participated. Therefore, it can be speculated whether a larger population and sample, hailing from more public hospitals, would have had an effect on the results obtained in this study. Including more public hospitals and professional nurses in the study would have increased the sample size and provided a greater variety of respondents. The instrument should be tested among professional nurses in private hospital settings to ensure heterogeneity. In testing the instrument in private hospitals, special attention should be given to the conceptual continuums that delivered low correlation in the current study, in order to improve the sensitivity, reliability and discrimination of the instrument (Brink et al 2012:165-174; Burns & Grove 2009: 387, 390; Polit & Beck 2010:373-382).

### **8.5.3 Use of the Cronbach's Alpha reliability test**

The use of the Cronbach's alpha test as only measure of reliability for a newly developed instrument could be a limitation due to its limited usefulness. The researcher thus suggests other types of reliability testing are also performed on the instrument.

#### **8.5.4 Use of the collective term *African languages***

Another possible limitation to the study could have been the grouping of the vernacular (indigenous, mother tongue) languages, namely isiZulu, isiXhosa, Setswana, Sepedi, Sesotho, Xitsonga, siSwati, isiNdebele and Tshivenda under the collective term *African languages*.

The researcher decided to group the vernacular languages together in this study due to the large variety of languages in South Africa. Taylor (2008) agrees with this line of reasoning and adds that languages are often grouped together in similar contexts, as some South African languages have many similarities in syntax and grammar. For example isiZulu, isiXhosa, siSwati and isiNdebele are collectively referred to as the Nguni languages. The Sotho languages – Setswana, Sepedi and Sesotho – also have much in common and are often grouped together, especially to increase sample sizes for research purposes (Taylor, 2008).

Yet the decision to group languages together could still have had a confounding effect on the reliability and validity of results, which might not give a clear picture of real response patterns for each language separately. The research conducted by Taylor (2008) on the response patterns of different language groups was based on a university student sample, with resulting limitations regarding generalisation of the results, as the eleven official languages of South Africa were not proportionately represented. She also grouped languages together according to their similar origins and grammatical structure, but suggested that research is needed on a large enough sample to investigate the eleven different languages of South Africa separately.

When Taylor (2008) conducted research on the influence of home language on the assessment of personality using the *Basic Traits Inventory* (a personality instrument that is based on a Five-Factor model, developed in South Africa by Taylor and De Bruin (2006)), the *Basic Traits Inventory* was administered only in English, and no test for English proficiency was administered. In this study Taylor (2008) divided the home languages into the following three groups for comparison: English, Afrikaans, and indigenous African languages.

The Taylor (2008) study reported very high internal consistency reliabilities, indicated by the Cronbach's Alpha coefficient and the *Person-Separation Index*. Thus, although there are eleven official languages in South Africa, many of the indigenous South African languages have a similar origin and grammatical structure and such similar languages were combined to enlarge the sample size per language group.

## **8.6 RECOMMENDATIONS**

The recommendations pertaining to the measuring instrument, nursing practice and research (based on the conclusions) are provided in the discussion that follows:

### **8.6.1 Measuring instrument (SDS)**

From the conclusions as stated in section 8.4.2.1, it is recommended that:

- The newly developed measuring instrument be refined even further, and that during future development and testing of the instrument, the two conceptual continuums Neutrality-Empathy and Strategy-Spontaneity should receive special attention.
- This study be duplicated in an effort to refine the instrument (questionnaire) used in this study with regard to its validity and reliability. The duplication study would have to include a larger sample, including all provincial health services in all of the nine South African provinces. The instrument should be tested on heterogeneous groups of professional nurses within the entire public health sector.
- A comparative study should be done on the difference between the communication behaviour orientation of professional nurses and their perceptions of operational manager communication behaviour orientation.
- Students studying nursing research should be exposed to this instrument or some of the conceptual continuums as part of their research methodology module, and be encouraged to apply and test this instrument or some of the conceptual continuums. By utilising this instrument or some of the conceptual continuums, as suggested, a valuable addition might be made to the scientific body of nursing knowledge.



### **8.6.2 Nursing practice**

Recommendations that stem from the conclusions as stated in section 8.4.2.2 are:

- Investigate the perceptions of professional nurses, as such an investigation could deliver important results.
- Emphasise and utilise the continuums with strong correlations in nursing practice.
- Refine the continuums that delivered the weakest correlations and test these continuums on heterogeneous groups of professional nurses in all public hospitals.
- Implement the guidelines as stated in Chapter 7 in order to facilitate a refocus on supportive communication climate in public hospitals.
- Monitor the implemented guidelines to determine whether the adjusted communication behaviour orientation of professional nurses has refocused their communication climate to a more supportive communication climate.

### **8.6.3 Research**

In an effort to promote the development of a supportive communication climate in public hospitals, the suggested recommendations include:

- Conduct a follow-up of the current study in which the study is broadened to include all public hospitals in all nine provinces, to generalise the results.
- Repeat the current study in hospital A, where respondents presented with the most significant orientation towards defensive communication behaviour, to determine possible reasons for the negative orientation trend towards the communication climate. Similarly, the same study should be conducted in hospital C, where respondents presented with the most significant orientation towards supportive communication behaviour, to elicit the reasons for this hospital's supportive communication climate orientation. The results of these two studies could be compared and the results from hospital C could be implemented in hospital A to assist in refocusing its climate A from a defensive to a supportive communication climate.

## **8.7 ATTAINMENT OF RESEARCH OBJECTIVES**

The first objective set for this study was achieved when the researcher developed a measuring instrument to assess the communication climate focus of professional nurses in selected public hospitals and pre-tested it on a selected population to test the reliability of the instrument (see Chapter 5). The second objective set for the study was achieved when the developed measuring instrument was tested on a selected population (see Chapter 6), and the final objective was reached when guidelines were developed from the results of the tested instrument and validated by a Delphi panel of experts (see Chapter 7). These, however, are only the early stages of the development of the instrument and the guidelines. Both the instrument and the guidelines will require constant refinement in order to ensure that their validity and reliability are enhanced.

## **8.8 CONCLUSION**

A new democratic era dawned on the South African landscape in 1994 and with it a new era in freedom of communication for all of its citizens. However, professional nurses report experiencing dissatisfaction with their communication and the communication climate in which they have to function in public hospitals. To address this dissatisfaction, this study quantitatively investigated the communication climate focus of professional nurses in selected public hospitals by assessing the communication behaviour orientation of professional nurses and their perception of the communication behaviour of their operational managers. The researcher achieved this by developing and testing a measuring instrument within the six conceptual continuums of the Gibb's Defensive Communication Climate Paradigm (1961).

The current communication climate in South African public hospitals could be more conducive to effective collaboration. Supportive interactions between all professional nurses are essential, and therefore a refocus of communication climate should be achieved, involving all professional nurses, to adapt their current communication behaviour orientation to a more supportive one. To this end, guidelines were developed in Chapter 7 of this study to facilitate the development and maintenance of a supportive communication climate in public hospitals. It is suggested that these guidelines be implemented as a whole to ensure a successful refocusing of the communication climate in public hospitals.

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**ANNEXURE A**

PERMISSION FROM THE HIGHER DEGREE COMMITTEE  
OF THE DEPARTMENT OF HEALTH STUDIES,  
UNIVERSITY OF SOUTH AFRICA

**UNIVERSITY OF SOUTH AFRICA  
Health Studies Higher Degrees Committee  
College of Human Sciences  
ETHICAL CLEARANCE CERTIFICATE**

**REC-012714-039**

**HS HDC/342/2014**

Date: 8 October 2014 Student No: 3096-473-3  
Project Title: Assessing the communication climate focus of professional nurses in selected public hospitals through the development of a measuring instrument.  
Researcher: JD Wagner  
Degree: D Litt et Phil Code: DPCHS04  
Supervisor: Prof JH Roos  
Qualification: D Litt et Phil  
Joint Supervisor: Prof MJ Oosthuizen

**DECISION OF COMMITTEE**

Approved

Conditionally Approved



**Prof L Roets  
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE**



**Prof MM Moléki  
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES**

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

**ANNEXURE B**

PERMISSION REQUESTED FROM THE GAUTENG DEPARTMENT OF HEALTH  
TO CONDUCT THE RESEARCH

**ANNEXURE B (i): Permission requested from the Gauteng Department of Health  
to conduct the research**

Cell no 083 235 6674

Rant-en-Dal

**KRUGERSDORP**

1739

31 July 2015

The Director  
Professional Services  
Bank of Lisbon  
C/o Sauer and Maude Streets  
JOHANNESBURG  
2001

Fax: (011) 838-1607

For attention: Ms. M. Lethata

**PERMISSION TO UNDERTAKE A RESEARCH PROJECT**

I am currently registered for a D Litt et Phil degree at the University of South Africa (Unisa). My promoter is Professor J.H. Roos. Ethical clearance for this study was obtained from the Health Studies Higher Degrees Committee of Unisa and the ethical clearance number is: HSHDC/342/2014.

I hereby request permission to undertake the research project at XXXXX XXX Hospital, XXXX XXXXX Hospital and XXXXXX Hospital. Regarding the proposed study, the following information is provided:

**1. TITLE**

The title of my proposed thesis is: "Assessing the communication climate focus of professional nurses in selected public hospitals in the Gauteng province through the development of a measuring instrument".

**2. RESEARCH QUESTION**

The research question for the study is: "What is the communication climate focus of professional nurses in public hospitals?"

### **3. PURPOSE OF THE STUDY**

The purpose of this study is to develop and test an instrument based on six conceptual continuums of the Gibb's Defensive Communication Climate Paradigm (1961), namely Evaluation-Description, Control-Problem orientation, Strategy-Spontaneity, Neutrality-Empathy, Superiority-Equality and Certainty-Provisionalism.

### **4. OBJECTIVES**

The objectives of the study include:

#### **4.1 During the Developmental Phase:**

During the Developmental Phase of the instrument the following objects are applicable:

- Formulate empirical referents for the study by:
  - defining the construct or behaviour to be measured by means of a literature study,
  - formulating and refining empirical concepts and constructs for the conceptual continuums within the Gibb's Defensive Communication Climate Paradigm (1961).
- Design an instrument to measure the communication climate of professional nurses according to the Gibb's conceptualised (bipolar) mini-models: Evaluation-Description, Control-Problem orientation, Strategy-Spontaneity, Neutrality-Empathy, Superiority-Equality and Certainty-Provisionalism, by:
  - validating the refined empirical concepts, response format and the instructions for respondents by means of expert input and sample congruent (pre-test) input,
  - incorporating the validated empirical concepts, response format and instructions for respondents into an instrument.
- pre-test the newly developed instrument, using a sample congruent (pre-test) group

#### **4.2 During the Testing Phase**

During the Testing Phase of the instrument the following objectives are applicable:

- test the validity, reliability and characteristics of the instrument by implementing it at three selected public hospitals in the Gauteng Province.
- develop guidelines for the development of a supportive communication climate.

## **5. SIGNIFICANCE OF THE STUDY**

Nursing practice demands of professional nurses (PNs) to interact in a self-assured manner with all other members of the health care team and the patient and ensures that their knowledge, skills, values and attitudes are continuously updated, under the guidance of operational managers (OMs). This can only occur if PNs function within the parameters of a supportive communication climate.

### **5.1 Communication climate refocus**

Support in the workplace has crucial implications for the functioning of any organisation as it reduces turnover and absenteeism (Wild 2010:18) and increases job satisfaction and commitment (Ashar, Ghafoor, Munir & Hafeez 2013:79). Refocusing attention on the communication climate is an important benefit emanating from this study. It is allied with different approaches to communication, such as the health and behavioural sciences (Du Plooy 2009:62-63). Positive, satisfied and supportive communicators are pivotal to a highly demanding nursing practice (Linsley 2012:61). The responsibility lies with both OMs and PNs to develop a climate in which patients as end-users will reap the benefit of positive, supportive communications (Wagner 2013:81). The newly developed instrument could indicate the need for a communication climate refocus and the implementation of the findings and guidelines from the newly constructed instrument, (once it has been fully developed and tested), should provide direction and focus regarding the communication climate focus held by PNs currently. Both OMs and PNs may, individually or in partnership, implement the instrument to assess the communicational focus of PNs in public hospitals on all six the conceptual continuums.

### **5.2 Scientific body of knowledge**

Communication as an element of the nursing profession is obliged to develop, maintain and add to a body of scientifically obtained knowledge. This knowledge must be free of any speculation and empirically grounded; therefore this study offers the basis for a scientifically formulated instrument to assess the communication climate focus of PNs. If public hospitals intend to initiate a communication climate refocus among their PNs from defensive to supportive, the instrument could provide a means to assess the current climate in these hospitals.

Additionally, the instrument may provide baseline data in the form of empirical referents or concepts (Chinn & Kramer 2004:146; Walker & Avant 2011:46), indicating how to develop a supportive communication climate. Finally, the instrument could also indicate specific aspects of the six conceptual continuums that require change and remedial action. Therefore guiding PNs towards more effective implementation of communication efforts; provide direct benefits to both the OMs and PNs and indirectly to the patient, through improvement in nursing practice and the quality of nursing care outputs.

### **5.3 Service excellence instrument**

This instrument, once finally refined, could be implemented as an instrument to assess and improve service excellence on individual, unit/departmental and organisational levels. The implementation of the instrument by the individual PNs and OMs may ensure that PNs attend communication skills training programme and ultimately, all nurses and patients reap the benefits of such a programme. The latter training is in line with the turnaround strategy launched by the Gauteng Department of Health (GDoH) in 2012 (South Africa 2012).

## **6. RESEARCH METHODOLOGY**

### **6.1 Research design**

The researcher will undertake a quantitative approach, using a non-experimental research design to formulate and test the measuring instrument (questionnaire) designed during this study. The study will consist of a *developmental* and *testing phase*. The design was selected as it facilitates the development, validation or evaluation of research instruments (tools) and techniques (Burns & Grove 2009: 27-28) and for reasons as explicated by the assumptions underlying this research.

### **6.2 Sampling design**

Simple random sampling will be used during the developmental phase as well as during the testing phase.



### **6.3 Population**

During the developmental phase the accessible population will consist of the professional nurses at XXX XXX Hospital. During the testing phase the accessible population will consist of all professional nurses at XXX XXX Hospital, XXX XXXX Hospital and XXXXX Hospital. The researcher envisages utilising a total of 270 professional nurses (who adhere to the set criteria for inclusion) from three participating public hospitals.

### **6.4 Data collection methods**

The researcher will personally collect the data by administering the newly developed instrument (Semantic Differential Scale) to respondents at the three selected public hospitals. The researcher will ensure that prior to the collection of the data that the necessary consent is obtained from the respective Chief Executive Officers of the participating hospitals and will ensure that arrangements are made in such a way as to cause minimal disruption of nursing services. Informed, voluntary, written consent will also be obtained from all respondents (professional nurses).

### **6.5 Data analysis**

Data will be analysed by means of descriptive and inferential statistics and computer programmes. A Statistician will be consulted during the data collection and analysis.

## **7 COMPLETION DATE**

The intended date for the completion of this research project is October 2017

Mr J-D Wagner

ANNEXURE B (ii): Permission granted by the Gauteng Department of Health to conduct the research



**GAUTENG PROVINCE**  
HEALTH  
REPUBLIC OF SOUTH AFRICA

**OUTCOME OF PROVINCIAL PROTOCOL REVIEW COMMITTEE (PPRC)**

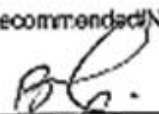
|   |   |
|---|---|
| Researcher's Name<br>(Principal investigator) | Mr JD Wagner  |
| Organization / Institution                    | Ann Latsky Nursing College  |
| Research Title                                | Assessing the Communication Climate Focus of Professional Nurses in selected Public Hospitals through the development of a Measuring Instrument   |
| Contact number                                | Address: N/A<br>Contact no: 083 235 0874<br>Cell: Email: <a href="mailto:JD.Wagner@gauteng.gov.za">JD.Wagner@gauteng.gov.za</a> or <a href="mailto:jdwagner8@gmail.com">jdwagner8@gmail.com</a> |
| Protocol number                               | GP2015RP28 554  |
| Outcome                                       | Approved  |

It is a pleasure to inform you that the Gauteng Health Department has approved your research on "Assessing the Communication Climate Focus of Professional Nurses in selected Public Hospitals through the development of a Measuring Instrument"

Study sites: Johannesburg district, Ekurhuleni district and West rand district:   
hospital,  hospital and  Hospital.

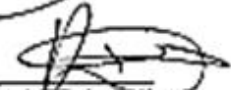
The Provincial Protocol Review Committee kindly requests that you to submit a report after completion of your study and present your findings to the Gauteng Health Department.

Recommended/Not Recommended \*

  
Dr. B. Ikalafeng  
(on behalf of PPRC)

Date: 27/11/2015

Approved/Not approved

  
Dr. L.R.R. Lebathe  
Acting DDG: Clinical Services

Date: 02/12/15

**ANNEXURE C**

PERMISSION REQUESTED FROM  
PARTICIPATING HOSPITALS A, B AND C  
TO UNDERTAKE THE STUDY

**ANNEXURE C (i): Permission requested from participating hospital A to undertake the study**

Cell no 083 235 6674

Rant-en-Dal

**KRUGERSDORP**

1739

31 May 2016

The Chief Executive Officer  
XXX XXXX Hospital  
XXXX Road  
XXXXX XXX  
JOHANNESBURG METRO  
2001

**For attention: Mrs. XXXXXXX**

**PERMISSION TO UNDERTAKE A RESEARCH PROJECT**

I am currently registered for a DLitt et Phil degree at the University of South Africa (Unisa). My promoter is Professor J.H. Roos. Ethical clearance for this study was obtained from the Health Studies Higher Degrees Committee of Unisa and the ethical clearance number is: HSHDC/342/2014. Furthermore, permission was obtained from the Gauteng Department of Health (Protocol number: GP2015RP28 554) to conduct this study. I hereby request permission to undertake the research project at XXX XXXX Hospital. The permission will entail:

1. During a Pilot Study, time to administer a questionnaire to thirty (30) respondents comprising of the professional nurses at XXX XXXX Hospital.
2. During the actual study, time to administer a questionnaire to respondents from all of the professional nurses, at all three of the participating hospitals.

The following information is applicable regarding the proposed study:

## **TITLE**

The title of my proposed thesis is: “Assessing the communication climate focus of professional nurses in selected public hospitals in the Gauteng province through the development of a measuring instrument”.

## **RESEARCH QUESTION**

“What is the communication climate focus of professional nurses in public hospitals?”

## **PURPOSE OF THE STUDY**

The purpose of this study is to develop and test an instrument based on six conceptual continuums of the Gibb’s Defensive Communication Climate Paradigm, namely the Evaluation-Description, the Control-Problem orientation, the Strategy-Spontaneity, the Neutrality-Empathy, the Superiority-Equality and the Certainty-Provisionalism.

## **RESEARCH METHODOLOGY**

The researcher will use a quantitative approach, using a non-experimental research design to formulate and test the measuring instrument (Semantic Differential Scale questionnaire) designed during this study. The study consists of a *developmental* and *testing phase*. A simple random sampling design will be used during the developmental phase as well as during the testing phase. During the developmental phase the accessible population will consist of professional nurses at a selected public hospital. During the testing phase the accessible population will consist of professional nurses from all three selected public hospitals. The researcher will collect the data by administering the newly developed instrument to respondents. Data will be analysed by means of descriptive and inferential statistics and computer programmes.

**The completion date of the study is October 2017**

Mr J-D Wagner  
Researcher

**ANNEXURE C (ii): Permission granted by participating hospital A to undertake the study**

**TO ADHERE TO ETHICAL CONSIDERATIONS THE ORIGINAL DOCUMENT WILL BE PRODUCED ON REQUEST**

**ANNEXURE C (iii): Permission requested from participating hospital B to undertake the study**

Cell no 083 235 6674

Rant-en-Dal

**KRUGERSDORP**

1739

31 May 2016

The Chief Executive Officer

XXX XXXXX Hospital

XXXXXX Road

XXXXXX

EKURHULENI

1459

**For attention: Ms. XXXXXXXXX**

**PERMISSION TO UNDERTAKE A RESEARCH PROJECT**

I am currently registered for a D Litt et Phil degree at the University of South Africa (Unisa). My promoter is Professor J.H. Roos. Ethical clearance for this study was obtained from the Health Studies Higher Degrees Committee of Unisa and the ethical clearance number is: HSHDC/342/2014. Furthermore, permission was obtained from the Gauteng Department of Health (Protocol number: GP2015RP28 554) to conduct this study. I hereby request permission to undertake the research project at XXX XXXXX Hospital. The permission will entail:

1. During a Pilot Study, time to administer a questionnaire to thirty (30) respondents comprising of professional nurses, at one of the three participating hospitals.
2. During the actual study, time to administer a questionnaire to respondents from all categories of professional nurses, at all three of the participating hospitals.

The following information is applicable regarding the proposed study:

## **TITLE**

The title of my proposed thesis is: “Assessing the communication climate focus of professional nurses in selected public hospitals in the Gauteng province through the development of a measuring instrument”.

## **RESEARCH QUESTION**

“What is the communication climate focus of professional nurses in public hospitals?”

## **PURPOSE OF THE STUDY**

The purpose of this study is to develop and test an instrument based on six conceptual continuums of the Gibb’s Defensive Communication Climate Paradigm, namely the Evaluation-Description, the Control-Problem orientation, the Strategy-Spontaneity, the Neutrality-Empathy, the Superiority-Equality and the Certainty-Provisionalism.

## **RESEARCH METHODOLOGY**

The researcher will use a quantitative approach, using a non-experimental research design to formulate and test the measuring instrument (Semantic Differential Scale questionnaire) designed during this study. The study consists of a *developmental* and *testing phase*. A simple random sampling design will be used during the developmental phase as well as during the testing phase, using a simple, random sample. During the developmental phase the accessible population will consist of professional nurses at a selected public hospital. During the testing phase the accessible population will consist of professional nurses from three selected public hospitals. The researcher will collect the data by administering the newly developed instrument to respondents. Data will be analysed by means of descriptive and inferential statistics and computer programmes.

**The completion date of the study is October 2017**

Mr J-D Wagner  
Researcher



**ANNEXURE C (iv): Permission granted by participating hospital B to undertake the study**

**TO ADHERE TO ETHICAL CONSIDERATIONS THE ORIGINAL DOCUMENT WILL BE PRODUCED ON REQUEST**

**ANNEXURE C (v): Permission requested from participating hospital C to undertake the study**

Cell no 083 235 6674

Rant-en-Dal

**KRUGERSDORP**

1739

31 May 2016

The Chief Executive Officer

XXXXXXXX Hospital

XXXXXXXX Street

XXXXXXX

XXXXXX

WEST RAND DISTRICT

1754

**For attention: Mrs. XXXXXXXX**

**PERMISSION TO UNDERTAKE A RESEARCH PROJECT**

I am currently registered for a DLitt et Phil degree at the University of South Africa (Unisa). My promoter is Professor J.H. Roos. Ethical clearance for this study was obtained from the Health Studies Higher Degrees Committee of Unisa and the ethical clearance number is: HSHDC/342/2014. Furthermore, permission was obtained from the Gauteng Department of Health (Protocol number: GP2015RP28 554) to conduct this study. I hereby request permission to undertake the research project at XXXXXXX Hospital. The permission will entail:

1. During a Pilot Study, time to administer a questionnaire to thirty (30) professional nurses, from one of the three hospitals participating in the study.
2. During the actual study, time to administer a questionnaire to professional nurses, at all three of the participating hospitals.

The following information is applicable regarding the proposed study:

## **TITLE**

The title of my proposed thesis is: “Assessing the communication climate focus of professional nurses in selected public hospitals in the Gauteng province through the development of a measuring instrument”.

## **RESEARCH QUESTION**

“What is the communication climate focus of professional nurses in public hospitals?”

## **PURPOSE OF THE STUDY**

The purpose of this study is to develop and test an instrument based on six conceptual continuums of the Gibb’s Defensive Communication Climate Paradigm, namely the Evaluation-Description, the Control-Problem orientation, the Strategy-Spontaneity, the Neutrality-Empathy, the Superiority-Equality and the Certainty-Provisionalism.

## **RESEARCH METHODOLOGY**

The researcher will use a quantitative approach, using a non-experimental research design to formulate and test the measuring instrument (Semantic Differential Scale questionnaire) designed during this study. The study consists of a *developmental* and *testing phase*. A simple random sampling design will be used during the developmental phase as well as during the testing phase, using a simple, random sample. During the developmental phase the accessible population will consist of professional nurses at a selected public hospital. During the testing phase the accessible population will consist of professional nurses at all three selected public hospitals. The researcher will collect the data by administering the newly developed instrument to respondents. Data will be analysed by means of descriptive and inferential statistics and computer programmes.

**The completion date of the study is October 2017**

Mr J-D Wagner  
Researcher

**ANNEXURE C (vi): Permission granted by participating hospital C to undertake the study**

**TO ADHERE TO ETHICAL CONSIDERATIONS THE ORIGINAL DOCUMENT WILL BE PRODUCED ON REQUEST**

**ANNEXURE D**

LETTER OF CONSENT – PROFESSIONAL NURSES

Rant-en-Dal  
**KRUGERSDORP**  
1739  
31 May 2016

Dear Respondent

## **PARTICIPATION IN RESEARCH STUDY**

I am currently registered for a DLitt et Phil degree at the University of South Africa (Unisa). My promoter is Professor J.H. Roos. The Gauteng Department of Health: Central Office granted me permission to undertake this study.

The title of my study: "Assessing the communication climate focus of professional nurses in selected public hospitals in the Gauteng province through the development of a measuring instrument". A quantitative approach and non-experimental research design are used. The simple random sampling design is used. The population consists of all professional nurses in public hospitals in the Gauteng province. Data, collected by means of the attached instrument (Semantic Differential Scale questionnaire), will be analysed using descriptive techniques and computer programmes. Informed, voluntary, written consent will be obtained from all the respondents (professional nurses) and privacy, anonymity and confidentiality will be maintained throughout the study.

The purpose of the questionnaire is to assess the Communication Climate Focus of professional nurses, thus, whether they display supportive or defensive communication behaviour. If communication is defensive in nature, the baseline criteria of the questionnaire will indicate, how professional nurses can make a transition to become positive, supportive communicators.

Your participation will involve completing the attached questionnaire and agreement, once it has been thoroughly explained to you. The explanation and completion of the questionnaire will take approximately 30 minutes. The researcher will be available in person during the distribution of the questionnaire to answer any questions arising during the completion of the questionnaire.

The completion date of the study is October 2017. The results of the study will only be made available to respondents on request.

Thank you for your willingness to complete the questionnaire.

Mr. J-D Wagner  
Researcher

## AGREEMENT

I, \_\_\_\_\_ on the \_\_\_\_\_ day of \_\_\_\_\_ 2016  
hereby consent to:

1. participating in the research study and complete the questionnaire both titled “***Assessing the communication climate focus of professional nurses in selected public hospitals in the Gauteng province through the development of a measuring instrument***”
2. follow-up clarification sessions if necessary
3. the use of data, derived from the complete questionnaire, by the researcher, in the research report as he deems appropriate.

**I also understand that:**

1. I am free to terminate my participation in this research study at any time I feel like it
2. information obtained, up to the point of my termination as a respondent from this study, could, however, still be used by the researcher
3. privacy will be maintained by the researcher adhering to the principles of confidentiality and anonymity and that data will under no circumstances be reported in such a way as to reveal my identity
4. no reimbursement will be made by the researcher, for the information given or for participation, in this project
5. by signing this agreement I undertake to give honest answers to reasonable questions and not to mislead the researcher
6. I will sign one agreement with all the other respondents in my hospital
7. an unsigned copy of this agreement will be submitted to the Chief Executive Officer of each hospital for my information.

**I hereby acknowledge that the researcher has:**

1. discussed the entire research study, and in particular the aims, objectives and completion of the questionnaire, with me
2. informed me about the contents of this agreement
3. point out the implications of signing this agreement.

**In co-signing this agreement the researcher undertakes to:**

- 1. maintain privacy by adhering to the principles of the confidentiality and anonymity regarding the respondents' identity and information given by the respondent
- 2. pre-arrange a suitable time and venue for the administration of the questionnaire
- 3. safeguard the original, signed agreement.

**Signatures:**

\_\_\_\_\_  
(Researcher)

\_\_\_\_\_  
Date

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
Date



**ANNEXURE E**

MEASURING INSTRUMENT:  
SEMANTIC DIFFERENTIAL SCALE QUESTIONNAIRE

## SDS QUESTIONNAIRE

**Title:** A measuring instrument to assess the communication climate focus of Professional Nurses in Public Hospitals in the Gauteng province.

**Aim:** To measure the communication climate orientation of professional nurses in hospitals.

**Instructions:** Indicate your preference by writing the appropriate numeral in the relevant square.

|                            |                           |                            |                         |                         |           |           |                    |
|----------------------------|---------------------------|----------------------------|-------------------------|-------------------------|-----------|-----------|--------------------|
| <b>Hospital:</b>           | XXX XXXXX Hospital<br>= 1 | XXX XXXXXX Hospital<br>= 2 | XXXXXXX Hospital<br>= 3 |                         | <b>C1</b> |           |                    |
| <b>Period in hospital:</b> | 1 – 3 years<br>= 1        | 4 – 6 years<br>= 2         | 7 - 9 years<br>= 3      | 10 or more years<br>= 4 |           | <b>C2</b> |                    |
|                            |                           |                            |                         | Actual years            |           |           | <b>C3</b>          |
| <b>Type of unit:</b>       | Medical<br>= 1            | Surgical<br>= 2            | Speciality<br>= 3       | Administration<br>= 4   |           | <b>C4</b> |                    |
| <b>Age:</b>                |                           |                            |                         | Actual years            |           |           | <b>C5/<br/>C6</b>  |
| <b>Gender:</b>             | Male<br>= 1               | Female<br>= 2              |                         |                         |           | <b>C7</b> |                    |
| <b>Mother<br/>Tongue:</b>  | African<br>= 1            | English<br>= 2             | Afrikaans<br>= 3        | Other<br>= 4            |           | <b>C8</b> |                    |
| <b>For Office Use:</b>     |                           |                            |                         |                         | 0         | 0         | <b>C9/<br/>C10</b> |

**Instructions:**

- (1) For each item, in this questionnaire, please indicate the extent to which you as a professional nurse experience the stated aspects of the communication climate in which you function.
- (2) There are no **right** or **wrong** answers; only your personal preferences are requested. Try to be as honest as you can be.
- (3) Complete the questionnaire by marking the space on the scales below with an **X**, to describe the degree to which you agree with the word on either the left of the right on the scale, completing the statements, e.g.

| Item No. | Item   | Office use only |
|----------|--|-----------------|
| 2        | I ..... criticise the actions of others in my ward/ unit during conversations.<br><br><div style="display: flex; justify-content: space-between; align-items: center; border: 1px solid black; padding: 5px;"> <span>Always</span> <span>1</span> <span style="text-align: center;"><del>X</del></span> <span>3</span> <span>4</span> <span>5</span> <span>6</span> <span>7</span> <span>Never</span> </div> |                 |

- (4) Please complete all the questions.
- (5) Do not write in the **“For Office Use Only”** section.
- (6) This questionnaire consists of 8 (eight) pages.

**Thank you for your willingness to complete this questionnaire**

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### Section A: Evaluation-Description

| Item No. | Item   | Office use only |   |   |   |   |   |       |   |       |            |
|----------|--|-----------------|---|---|---|---|---|-------|---|-------|------------|
| 1        | <p style="text-align: center;">I ..... judge the work of others in my ward/unit during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>                      | Always          | 1 | 2 | 3 | 4 | 5 | 6     | 7 | Never | <b>C11</b> |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never |   |       |            |
| 2        | <p style="text-align: center;">I ..... criticise the actions of others in my ward/unit during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>               | Always          | 1 | 2 | 3 | 4 | 5 | 6     | 7 | Never | <b>C12</b> |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never |   |       |            |
| 3        | <p style="text-align: center;">I ..... blame others during conversations when problems arise in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>              | Always          | 1 | 2 | 3 | 4 | 5 | 6     | 7 | Never | <b>C13</b> |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never |   |       |            |
| 4        | <p style="text-align: center;">I ..... label situations as good or bad in my ward/unit during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>               | Always          | 1 | 2 | 3 | 4 | 5 | 6     | 7 | Never | <b>C14</b> |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never |   |       |            |
| 5        | <p style="text-align: center;">I ..... use "you language" during conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>                | Always          | 1 | 2 | 3 | 4 | 5 | 6     | 7 | Never | <b>C15</b> |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never |   |       |            |
|          |  |                 |   |   |   |   |   |       |   |       |            |
| 6        | <p style="text-align: center;">The operational manager in charge of my ward/unit ..... judges others in conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>     | Always          | 1 | 2 | 3 | 4 | 5 | 6     | 7 | Never | <b>C16</b> |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never |   |       |            |
| 7        | <p style="text-align: center;">The operational manager in charge of my ward/unit ..... criticises others in conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table> | Always          | 1 | 2 | 3 | 4 | 5 | 6     | 7 | Never | <b>C17</b> |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never |   |       |            |
| 8        | <p style="text-align: center;">The operational manager in charge of my ward/unit ..... blames others for problems.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>         | Always          | 1 | 2 | 3 | 4 | 5 | 6     | 7 | Never | <b>C18</b> |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never |   |       |            |
| 9        | <p style="text-align: center;">The operational manager in charge of my ward/unit ..... labels situations as good or bad.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>   | Always          | 1 | 2 | 3 | 4 | 5 | 6     | 7 | Never | <b>C19</b> |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never |   |       |            |
| 10       | <p style="text-align: center;">The operational manager in charge of my ward/unit ..... uses "you language".</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>                | Always          | 1 | 2 | 3 | 4 | 5 | 6     | 7 | Never | <b>C20</b> |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never |   |       |            |

### Section B: Control-Problem orientation

| Item No. | Item   | Office use only |   |   |   |   |   |        |   |        |     |
|----------|--|-----------------|---|---|---|---|---|--------|---|--------|-----|
| 11       | <p>I ..... try to influence the behaviour of others in my ward/unit during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>      | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C21 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 12       | <p>I ..... adopt an authoritarian attitude during conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>   | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C22 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 13       | <p>I ..... take charge of all situations in conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>         | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C23 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 14       | <p>I ..... use straightforward language during conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Never</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>      | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C24 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 15       | <p>I am ..... open to finding the best solution to problems in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Never</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>                   | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C25 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 16       | <p>I ..... impose my point of view during conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>           | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C26 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
|          |  |                 |   |   |   |   |   |        |   |        |     |
| 17       | <p>The operational manager in charge of my ward/unit ... tries to influence others' behaviour.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table> | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C27 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 18       | <p>The operational manager in charge of my ward/unit ..... adopts an authoritarian attitude.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>   | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C28 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 19       | <p>The operational manager in charge of my ward/unit ..... takes charge of all conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>  | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C29 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 20       | <p>The operational manager in charge of my ward/unit ..... uses straightforward language.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>     | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C30 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 21       | <p>The operational manager in charge of my ward/unit is ..... open to problem-solving.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>        | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C31 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 22       | <p>The operational manager in charge of my ward/unit ..... imposes his/her point of view.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>      | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C32 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |

### Section C: Strategy-Spontaneity

| Item No. | Item   | Office use only |   |   |   |   |   |        |   |        |     |
|----------|--|-----------------|---|---|---|---|---|--------|---|--------|-----|
| 23       | <p style="text-align: center;">I am ..... honest when dealing with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Never</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>   | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C33 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 24       | <p style="text-align: center;">I ..... have hidden motives during conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>                         | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C34 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 25       | <p style="text-align: center;">I ..... distort what is being said in conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>                      | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C35 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 26       | <p style="text-align: center;">I ..... use a direct approach in conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Never</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>                           | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C36 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 27       | <p style="text-align: center;">I ..... accept the ideas of others in my ward/unit during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Never</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>                              | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C37 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 28       | <p style="text-align: center;">I ..... display a spontaneous attitude during conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Never</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>              | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C38 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
|          |  |                 |   |   |   |   |   |        |   |        |     |
| 29       | <p style="text-align: center;">The operational manager in charge of my ward/unit is .... honest when dealing with others.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Never</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>            | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C39 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 30       | <p style="text-align: center;">The operational manager in charge of my ward/unit .... has hidden motives in conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>           | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C40 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 31       | <p style="text-align: center;">The operational manager in charge of my ward/unit ..... distorts what is being said.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Always</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Never</td> </tr> </table>                  | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C41 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 32       | <p style="text-align: center;">The operational manager in charge of my ward/unit ... uses a direct approach to conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Never</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>        | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C42 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 33       | <p style="text-align: center;">The operational manager in charge of my ward/unit ..... accepts the ideas of others.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Never</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table>                  | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C43 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 34       | <p style="text-align: center;">The operational manager in charge of my ward/unit ... displays a spontaneous attitude towards others.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Never</td> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 15%; text-align: center;">Always</td> </tr> </table> | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C44 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |

**Section D: Neutrality-Empathy**

| Item No. | Item  | Office use only |   |   |   |   |   |        |   |        |     |
|----------|---|-----------------|---|---|---|---|---|--------|---|--------|-----|
| 35       | <p align="center">I ..... respect the feelings of others in my ward/unit during conversations.</p> <table border="1" data-bbox="355 365 1238 409"> <tr> <td align="center">Never</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Always</td> </tr> </table>                               | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C45 |
| Never    | 1   | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 36       | <p align="center">I ..... use affectionate language during conversations with others in my ward/unit.</p> <table border="1" data-bbox="355 528 1238 573"> <tr> <td align="center">Never</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Always</td> </tr> </table>                        | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C46 |
| Never    | 1   | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 37       | <p align="center">I ..... show indifference to the feelings of others in my ward/unit during conversations.</p> <table border="1" data-bbox="355 692 1238 736"> <tr> <td align="center">Always</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Never</td> </tr> </table>                  | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C47 |
| Always   | 1   | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 38       | <p align="center">I ..... show interest in the problems of others in my ward/unit during conversations.</p> <table border="1" data-bbox="355 853 1238 898"> <tr> <td align="center">Never</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Always</td> </tr> </table>                      | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C48 |
| Never    | 1   | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 39       | <p align="center">I ..... become involved in conflicts between others in my ward/unit.</p> <table border="1" data-bbox="355 1016 1238 1061"> <tr> <td align="center">Always</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Never</td> </tr> </table>                                     | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C49 |
| Always   | 1   | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
|          |   |                 |   |   |   |   |   |        |   |        |     |
| 40       | <p align="center">The operational manager in charge of my ward/unit ..... respects the feelings of others.</p> <table border="1" data-bbox="355 1216 1238 1261"> <tr> <td align="center">Never</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Always</td> </tr> </table>                 | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C50 |
| Never    | 1   | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 41       | <p align="center">The operational manager in charge of my ward/unit ..... uses affectionate language.</p> <table border="1" data-bbox="355 1377 1238 1422"> <tr> <td align="center">Never</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Always</td> </tr> </table>                      | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C51 |
| Never    | 1   | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 42       | <p align="center">The operational manager in charge of my ward/unit ..... displays indifference to the feelings of others.</p> <table border="1" data-bbox="355 1541 1238 1585"> <tr> <td align="center">Always</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Never</td> </tr> </table> | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C52 |
| Always   | 1   | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 43       | <p align="center">The operational manager in charge of my ward/unit ..... shows an interest in the problems of others.</p> <table border="1" data-bbox="355 1704 1238 1749"> <tr> <td align="center">Never</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Always</td> </tr> </table>     | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C53 |
| Never    | 1   | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 44       | <p align="center">The operational manager in charge of my ward/unit ..... becomes involved in conflicts.</p> <table border="1" data-bbox="355 1868 1238 1912"> <tr> <td align="center">Always</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Never</td> </tr> </table>                   | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C54 |
| Always   | 1   | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |

### Section E: Superiority-Equality

| Item No. | Item   | Office use only |   |   |   |   |   |        |   |        |     |
|----------|--|-----------------|---|---|---|---|---|--------|---|--------|-----|
| 45       | <p>I ..... emphasise my status during conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>                          | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C55 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 46       | <p>I ..... make others in my ward/unit feel inadequate during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>                              | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C56 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 47       | <p>I ..... welcome feedback and help from others in my ward/unit during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Always</td> </tr> </table>                    | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C57 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 48       | <p>I ..... display an open attitude to the views of others in my ward/unit during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Always</td> </tr> </table>          | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C58 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 49       | <p>I ..... respect the positions of others in my ward/unit during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Always</td> </tr> </table>                          | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C59 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 50       | <p>I ..... treat others in my ward/unit as inferior to me during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>                           | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C60 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
|          |  |                 |   |   |   |   |   |        |   |        |     |
| 51       | <p>The operational manager in charge of my ward/unit ..... emphasises his/her status to others.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>           | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C61 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 52       | <p>The operational manager in charge of my ward/unit ..... makes others feel inadequate.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>                  | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C62 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 53       | <p>The operational manager in charge of my ward/unit ..... welcomes feedback and help.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Always</td> </tr> </table>                    | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C63 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 54       | <p>The operational manager in charge of my ward/unit ..... shows an open attitude to the views of others.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Always</td> </tr> </table> | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C64 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 55       | <p>The operational manager in charge of my ward/unit ..... respects the positions of others.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Always</td> </tr> </table>              | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C65 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 56       | <p>The operational manager in charge of my ward/unit .... treats others as inferior to him/her.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>           | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C66 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |

### Section F: Certainty-Provisionalism

| Item No. | Item   | Office use only |   |   |   |   |   |        |   |        |     |
|----------|--|-----------------|---|---|---|---|---|--------|---|--------|-----|
| 57       | <p>I ..... feel I have to be right during all conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>                | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C67 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 58       | <p>I ..... reject the ideas and opposing views of others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>                               | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C68 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 59       | <p>I am ..... willing to adapt my ideas in conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Always</td> </tr> </table>                   | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C69 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 60       | <p>I ..... adopt a flexible attitude during conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Always</td> </tr> </table>                  | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C70 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 61       | <p>I ..... take sides on issues during conversations with others in my ward/unit.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>                       | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C71 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 62       | <p>I ..... adopt a doubting attitude to others in my ward/unit during conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>                    | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C72 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
|          |  |                 |   |   |   |   |   |        |   |        |     |
| 63       | <p>The operational manager in charge of my ward/unit ..... feels he/she is right in all conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>  | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C73 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 64       | <p>The operational manager in charge of my ward/unit ..... rejects ideas and opposing views.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>            | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C74 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 65       | <p>The operational manager in charge of my ward/unit is ..... willing to adapt his/her ideas.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Always</td> </tr> </table>           | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C75 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 66       | <p>The operational manager in charge of my ward/unit ..... adopts a flexible attitude in conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Always</td> </tr> </table> | Never           | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Always | C76 |
| Never    | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Always |   |        |     |
| 67       | <p>The operational manager in charge of my ward/unit ..... takes sides on issues.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>                       | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C77 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |
| 68       | <p>The operational manager in charge of my ward/unit ..... shows a doubting attitude in conversations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Always</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">Never</td> </tr> </table>  | Always          | 1 | 2 | 3 | 4 | 5 | 6      | 7 | Never  | C78 |
| Always   | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Never  |   |        |     |



**Section G: General**

| Item No.  | Item   | Office use only |   |   |   |   |   |            |   |            |     |
|-----------|--|-----------------|---|---|---|---|---|------------|---|------------|-----|
| 69        | <p align="center">I can describe my overall communication behaviour towards others in my ward/unit as .....</p> <table border="1" data-bbox="355 387 1238 432"> <tr> <td align="center">Defensive</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Supportive</td> </tr> </table>         | Defensive       | 1 | 2 | 3 | 4 | 5 | 6          | 7 | Supportive | C79 |
| Defensive | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Supportive |   |            |     |
| 70        | <p align="center">The overall communication behaviour of the operational manager in charge of my ward/unit is .....</p> <table border="1" data-bbox="355 539 1238 584"> <tr> <td align="center">Defensive</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">5</td> <td align="center">6</td> <td align="center">7</td> <td align="center">Supportive</td> </tr> </table> | Defensive       | 1 | 2 | 3 | 4 | 5 | 6          | 7 | Supportive | C80 |
| Defensive | 1  | 2               | 3 | 4 | 5 | 6 | 7 | Supportive |   |            |     |

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE!

**ANNEXURE F**

POST-PRE-TEST QUESTIONNAIRE  
FOR THE SEMANTIC DIFFERENTIAL SCALE

## POST-PRETEST ASSESSMENT OF THE QUESTIONNAIRE

This assessment serves to identify any problems encountered by you during the completion of the Questionnaire (Semantic Differential Scale). The feedback that you provide may be used to improve the research study by adding, refining and introducing modifications as and where required. Please complete the following questions.

|          | Do you have any comments regarding the following aspects?  | Tick only one of the blocks below by marking it with an X | Please comment in the space provided below. |
|----------|--|---|---|
| <b>1</b> | <b>THE RESEARCH STUDY</b>  |   |   |
|          | <b>With regard to the study, were you satisfied with the way in which the following aspects were explained to you?</b> |   |   |
| 1.1      | Aim/ purpose of the study  | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 1.2      | Methodology of the study   | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 1.3      | Acceptability of the instrument  | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 1.4      | Informed consent   | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 1.5      | Anonymity  | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 1.6      | Confidentiality  | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |

|          | Do you have any comments regarding the following aspects?  | Tick only one of the blocks below by marking it with an X | Please comment in the space provided below. |
|----------|--|---|---|
| <b>2</b> | <b>THE QUESTIONNAIRE</b><br>With regard to the questionnaire, were you satisfied with the following aspects? |   |   |
| 2.1      | Aim/ purpose of the questionnaire  | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.2      | Adherence to ethical principles  | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.3      | Administration of the instrument   | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.4      | Layout of the questionnaire  | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.5      | Paper quality  | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.6      | Printing quality   | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.7      | Clarity of instructions for the Ranking scale  | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.8      | Clarity of instructions for the Semantic Differential Scale  | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.9      | Time allocated for the completion of the questionnaire   | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.10     | Ease with which you could answer the questions   | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.11     | Understanding the meaning of the questions   | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| 2.12     | Relevancy of the questions   | <input type="checkbox"/> YES <input type="checkbox"/> NO  |   |
| <b>3</b> | <b>ADDITIONAL COMMENTS</b><br>Please add any additional comments in the space provided below                 |   |   |
|          |  |   |   |
|          |  |   |   |

**Thank you for your willingness to complete this questionnaire.**

**ANNEXURE G**

SUMMARY OF FEEDBACK FROM DELPHI PANEL OF EXPERTS

| Delphi round   | Criteria   | DPM Consensus | Feedback/suggestions provided by Delphi panel members  | Actions taken by researcher   |
|--|--|---------------|--|---|
| <b>ROUND 1</b><br>Formulating, refining and validating the concepts from the Gibb's Defensive Communication Climate Paradigm (1961)          | Theory:<br><ul style="list-style-type: none"> <li>• Appropriateness</li> <li>• Sound foundation for envisaged study</li> <li>• Concept analysis</li> <li>• Construct analysis</li> <li>• Reliability testing</li> <li>• Validity testing</li> </ul>  | 100%          | The Gibb's Defensive Communication Climate Paradigm (1961) is the correct theory for this study. The six bipolar continuums can serve as theoretical foundation for the envisaged study.   | The researcher took note of the comment and assured the panel that he conducted a thorough theory review prior to selecting the Gibb's theory to ensure the correctness of the theory for this study.   |
|  |  | 100%          | The derived concepts for each continuum (explained in chapter 3 and Figure 1.1) are well explained and can serve as items for the draft measuring instrument. The researcher must however ensure, with assistance of a language editor that these concepts are grammatically correct.  | The researcher analysed the Gibb's theory (see chapter 3) to extrapolate the required constructs/concepts from the theory through deduction and refinement. Furthermore, he presented the constructs and concepts to a language editor, for grammatical corrections on the concepts.  |
|  |  | 92%           | The selected concepts/ constructs have to be statistically analysed to ensure reliability and its validity tested on an eligible population to see if it will deliver the required results once incorporated into a new measuring instrument (SDS).  | The researcher presented the concepts, incorporated in the constructs of a draft measuring instrument, to a statistician. He did a Cronbach's Alpha analyses to determine the reliability of constructs used in the new draft instrument.   |
| <b>ROUND 2</b><br>Discussion of the development of the measuring instrument Semantic Differential Scale (SDS) and the pre-testing of the SDS | Measuring instrument Design:<br><ul style="list-style-type: none"> <li>• Correctness</li> <li>• Practicality</li> <li>• Clarity</li> <li>• Layout</li> <li>• Relevance</li> <li>• Completion time</li> <li>• Validity testing</li> <li>• Reliability testing</li> </ul>  | 92%           | Focussing on OMs in general is broad; respondents could find it problematic to select OMs to comment on – instead focus on a specific OM of a specific unit.   | The researcher changed 'operational manager' question sections to include the wording: "The operational manager in charge of my ward/unit..."   |
|  |  | 92%           | The word 'hospital' is too broad and should be omitted from all questions.   | The word 'hospital' was omitted to focus respondents to their own wards/ units.   |
|  |  | 92%           | Using concepts in the adjectives form to formulate questions is often tedious and complicates the compilation of sentences. Concepts describing communication behaviour could be retained in original theoretical format and that action verbs are used instead to formulate the questions for the questionnaire.  | The researcher agreed with the panel that using concepts in the adjective form leads to long sentences that are difficult for respondents to read. He therefore adapted the wording of the questions for the questionnaire and made use of action verbs to retain the communication behaviour concepts in their original form.  |
|  |  | 92%           | Replace adjectives/antonyms measuring supportive and defensive poles with more relevant words (such as 'yes' and 'no' or 'always' and 'never') to measure opinions of the respondents more accurately.   | The language editor also suggested this and the researcher agreed. He replaced the different adjectives/antonyms with the words 'always' and 'never' to obtain a more honest, accurate measure.   |
|  |  | 92%           | The words "mutual" and "equality" in the questionnaire require refinement.   | The researcher refined or substituted the identified words that caused problems.  |
|  |  | 92%           | The validity and reliability of the SDS have to be checked by a qualified statistician.  | The scale was assessed by a qualified statistician for validity and reliability.  |
|  | Measuring instrument Pre-testing:<br><ul style="list-style-type: none"> <li>• Sample size</li> <li>• Correctness of test</li> <li>• Post-testing Validity (face validity) <ul style="list-style-type: none"> <li>- Content</li> <li>- Layout</li> <li>- Relevancy</li> <li>- Completion time</li> </ul> </li> <li>• Reliability</li> </ul> | 100%          | One of the panel members suggested omitting the numbering of the blocks on the SDS due to some respondents finding it problematic. However, clear instructions on how to complete the instrument would then become essential.  | The researcher did not omit numbering in the blocks of the SDS because leaving only empty blocks between the two items might create more confusion. He will explain the completion instructions for the instrument in more detail anyway.   |
|  |  | 100%          | The panel members were not in favour of changing the scale to another type of scale. They concur that the SDS as used for this study is more conducive for the dichotomous nature of the study.  | The researcher is in agreement with this comment because the dichotomy of the questionnaire depends on the type of scale that is used, in this instance the SDS.  |
|  |  | 92%           | The panel requested to evaluate the draft instrument for face validity with regard to the content, the technical presentation and design (i.e. layout, relevancy, completion time, etc. of the instrument).  | The draft measuring instrument was presented to the panel members again, after the corrections suggested by the panel members, statistician and language editor were incorporated.  |
|  |  | 92%           | The panel reacted positive after analysing the reliability testing results of the draft instrument. They commented that the high reliability is an indicator of question consistency and congruency. Most of the questions reflect the constructs (Gibb's conceptual continuums). The questions that had a higher score than the overall Cronbach's Alpha should not be excluded from the questionnaire as the content of the questions contributes to the overall value of the questionnaire. Furthermore some of the items could be tested for inter-rater agreement, as suggested by the researcher, by using the Fleiss' Kappa-test. | The researcher welcomed the positive reaction of the panel members to the results of the reliability testing of the measuring instrument. His intention was to keep the items in the questionnaire as close as possible to the content in the Gibb's theory.<br>The researcher decided not to omit those questions that obtained a higher score than the overall Cronbach's Alpha score for some of the constructs tested in the pre-test study.<br>The suggestion of testing some of the items with the Fleiss' Kappa-test for inter-rater agreement was forwarded to the Delphi-panel and the statistician. |

| Delphi round   | Criteria   | DPM Consensus                          | Feedback/suggestions provided by Delphi panel members  | Actions taken by researcher  |
|--|--|--|--|--|
| <b>ROUND 2 (Continue)</b><br>Discussion of the development of the measuring instrument (SDS) and pre-testing of the SDS                            | Measuring instrument Items correctness:<br><ul style="list-style-type: none"> <li>• Accuracy</li> <li>• Relevancy</li> <li>• Clarity</li> <li>• suitability</li> </ul>   | 92%<br>92%<br>92%<br>92%               | The members of the Delphi panel were in agreement that if a Kappa-test is to be performed on the measuring instrument, it had to include both the Cohen's and Fleiss' kappa inter-rater agreement tests. The Delphi panel members agreed that a Cohen's kappa-test is applicable in cases where there are only two ratings present. The Fleiss' kappa-test, in contrast, can be used for any number of ratings (as is the case with this study).   | The researcher (requested by the statistician) asked the Delphi panel for inputs on the obtained pre-test study data. Firstly the Delphi panel members had to rate the thirty (30) respondents (in the pre-test study) as to whether the respondents displayed a Defensive or a Supportive communication orientation; according to how the respondents marked the items in the questionnaire. Secondly the Delphi panel had to rate the actual items on the questionnaire as correct or incorrect (with regard to its accuracy, relevancy, clarity & suitability) for the constructs that it has to measure. The feedback from all twelve (12) Delphi members was collated and tables populated, to simplify the analysis of the data. The researcher forwarded the data to the statistician for analysis. |
| <b>ROUND 3</b><br>Discussion of the testing of the newly developed measuring instrument and the development of supportive communication guidelines | Measuring Instrument Testing:<br><ul style="list-style-type: none"> <li>• Sample size</li> <li>• Correctness of test</li> <li>• Post-testing <ul style="list-style-type: none"> <li>- Validity</li> <li>- Reliability</li> </ul> </li> </ul>   | 100%<br>100%<br>92%<br>92%             | The Delphi panel commented that the instrument (SDS) was tested on a broad enough, homogeneous) population for valuable inferences to be made. To ease the process of administering the questionnaire to respondents in future, trained field workers can be used. Adding open-ended questions can also enhance the qualitative value of the instrument.   | The researcher agrees that the selected study population was large enough for the purpose of the study. He will mention the homogeneity of the sample as a limitation of the study. He also take note of the suggestion to use field workers for similar, future studies and make mention in the "further research" section of the study to include open-ended questions for qualitative purposes.   |
|  |  |  | The members of the Delphi panel had an opportunity to assess the testing results of the developed instrument. They welcomed the strong input from the statistician on the analysis of the results. Their comments on the results of the study were that the results did address statements set in the three research questions and that although some of the results were expected, all the results are deemed valuable, because the study is unique in that the Gibbs' theory has never before been used in the South African context. All new information in this regard is thus perceived as valuable and adding to the body of scientific knowledge. | The researcher is in agreement that the statistician played a vital role in the analysis of the study results. Accuracy is of the utmost importance in a study of this magnitude; <i>inter alia</i> , 3 research questions and 6 factors for testing and guidelines to be drawn on the basis of the research results. The researcher is also in agreement that the results did address the statements in the three research questions and that some of the results were predictable and others less so. The researcher is furthermore also in agreement with the Delphi panel that the study generated new and useful information in the South African context and in the nursing domain.  |
|  | Guidelines development:<br><ul style="list-style-type: none"> <li>• Validation <ul style="list-style-type: none"> <li>- Clarity</li> <li>- Comprehensive</li> <li>- Applicability</li> <li>- Adaptability</li> <li>- Credibility</li> <li>- Validity</li> <li>- Feasibility</li> </ul> </li> </ul> | 92%<br>92%<br>92%<br>92%<br>92%<br>83% | Regarding development of guidelines, the Delphi panel suggested that the researcher develop guidelines aimed at five entities, namely the GDoH, institutions, nurse managers, nurse educators and professional nurses.   | The researched agreed and developed guidelines towards the development of supportive communication climates in public hospitals aimed at the GDoH, institutions, nurse managers, nurse educators and professional nurses.  |
|  |  |  | After the development of the guidelines, the Delphi panel had to validate it for clarity, validity, comprehensiveness, applicability, adaptability & credibility. The panel found the guidelines valid, clear & comprehensive. Concerns with regard to the financial feasibility of the guidelines for public hospitals exist.   | The researcher noted the responses of the Delphi panel members. He agrees with the panel that the guidelines are, comprehensive, valid and clear overall. Regarding financial constraints against the implementation of the guidelines, the GDoH makes provision for such needs by utilising a budgetary system.   |
|  |  |  | The Delphi panel members suggested that the researcher develop behaviour modification strategies aimed at PNs. The strategies could include: Behaviour modelling (learning by observing the behaviour of others), behaviour shaping (successive approximations of target behaviour reinforcement) & behaviour chaining (linking single behaviours, leading to targeted desired behaviour) (Arnold & Boggs (2011:316).  | The researcher agrees; however to develop elaborate behaviour modification strategies within the confines of this study would be logistically impossible. The researcher suggested to the panel that mention can be made in this study of the need for such strategies and that in future research, more elaborate behaviour modification strategies for professional nurses can be designed as a separate model.  |

**ANNEXURE H**

LETTER FROM STATISTICIAN



18 July 2017

**Letter of Statistician**

**RE Statistical analysis of the dissertation: “ASSESSING THE COMMUNICATION CLIMATE FOCUS OF PROFESSIONAL NURSES IN SELECTED PUBLIC HOSPITALS THROUGH THE DEVELOPMENT OF A MEASURING INSTRUMENT”**

**TO WHOM IT MAY CONCERN**

This letter serves to confirm that HJ Gerber was involved in the empirical research efforts of Mr JD Wagner for his DPhil study at the University of South Africa.

HJ Gerber can vouch for the accuracy of the statistical evaluation undertaken for the empirical chapter of the student’s dissertation.

Although every effort was made to ensure that the student presented the statistical results correctly, HJ Gerber cannot accept responsibility for the structure and presentation of the results of this study.

Kindly contact me should you need to verify the contents of this letter, should it be required.

Hennie Gerber

Statistician

[hjgerber@gmail.com](mailto:hjgerber@gmail.com)

083 229 9993

**ANNEXURE I**

LETTER FROM EDITOR

## CERTIFICATE OF EDITING – MJ MARCHAND

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14, Twenty First Street  
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4 October 2017

To whom it may concern:

---

I certify that I am a professional, experienced and accredited editor and that I have edited the D Litt et Phil dissertation in Health Studies entitled “Assessing the communication climate focus of professional nurses in selected public hospitals through the development of a measuring instrument”, by J-D Wagner, promoter Prof. J.H. Roos

I have edited the dissertation for clarity, correctness and flow of language and expression. I have also checked the reference list and the references against the text to the best of my ability.

The edited dissertation left my hands on 4 October 2017.

Marion J Marchand  
BA, H Dipl Lib, HED,  
Postgraduate Certificate in Editing UP; Accredited Translator (Afrikaans to English) and English Editor, South African Translators' Institute, Member of the Professional Editors' Guild; Member of the English Academy

**ANNEXURE J**

READER: CRITERIA FOR THE GIBB'S DEFENSIVE  
COMMUNICATION CLIMATE PARADIGM (1961)

**Table J.1: Criteria for the poles of the Evaluation-Description Continuum**

|   |
|---|
| <p><b>A. Evaluation-Description Continuum</b></p> <p><b>1. Defensive pole (Evaluation)</b></p> <ul style="list-style-type: none"><li>• Insecure individuals often place blame and view others in categories of good or bad,</li><li>• Often make moral judgements and question the value and motive of their colleagues, affecting the value loadings (judgement of others by believing that the standards of the speaker differ from that of the receiver) of the speech which they hear,</li><li>• Can cause the listener to become defensive (Gibb 1988:3).</li><li>• It consists of communication behaviour that engage in judgemental language (Gibb 1961; Czech &amp; Forward 2013:12), and is marked by so-called “you language” or “you messages” (Adler, Rosenfeld, Proctor &amp; Winder 2009:298), in which blame is placed on another person.</li><li>• Gibb (1988:2) states that speech or other behaviour which appears evaluative increases defensiveness.</li></ul> <p><b>1.1 Negative behaviour</b></p> <ul style="list-style-type: none"><li>• Criticises the work of others</li><li>• Judges the actions of others</li><li>• Criticizing someone in the presence of others</li></ul> <p><b>1.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Judge</li><li>• Criticize</li><li>• Label</li><li>• Accuse</li><li>• blame</li></ul> <p><b>2. Supportive pole (Description)</b></p> <ul style="list-style-type: none"><li>• Descriptive communication tends to arouse minimal uneasiness and encompasses language in which the listener can perceive the need for information (material with neutral loadings) and a real desire to understand the view of another (Gibb 1988:3).</li><li>• It is marked by the use of “I language” that places the responsibility on the sender of the message (Gibb 1961; Czech &amp; Forward 2013:12) and descriptive messages offer thoughts and feelings without judging others.</li><li>• It arouses little defensiveness, because it focuses on presenting feelings or opinions without assigning blame, for instance, a person can express concern about a deadline by describing his/her feelings (Trenholm 2011:185).</li><li>• Descriptive messages are “observations that can be specific and concrete” (Adler et al 2009:298), therefore it is expected that “I” messages can be more likely to create a positive communication climate than “you” messages that is defensive.</li></ul> <p><b>2.1 Positive behaviour</b></p> <ul style="list-style-type: none"><li>▪ Explains situations without personal bias</li><li>▪ Presents feelings and perceptions without expectations</li><li>▪ Does not label situations as good or bad</li></ul> <p><b>2.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Understand</li><li>• Explain</li><li>• Clarify</li><li>• Inform</li><li>• justify</li></ul> |
|---|

**Table J.2: Criteria for the poles of the Control-Problem Orientation Continuum**

|   |
|---|
| <p><b>B. Control-Problem Orientation Continuum</b></p> <p><b>1. Defensive pole (Control)</b></p> <ul style="list-style-type: none"><li>• It is a common occurrence that in social interaction, one person is attempting to do something to another person – to change an attitude, to influence behaviour, or to restrict the field of activity (Gibb 1988:3).</li><li>• Control is an ability to change or modify behaviour by the systematic use of applicable reinforcement or punishment (Reber et al 2009:168).</li><li>• The extent to which these attempts to control produces defensiveness, depends on the openness of the effort.</li><li>• Suspicion, that hidden motives exists, increases resistance.</li><li>• Control is often marked by implicit attempts to be manipulative and the speaker may view the listener as arrogant, unwise, uninformed or of possessing inappropriate attitudes (Gibb 1961; Czech &amp; Forward 2013:12).</li></ul> <p><b>1.1 Negative behaviour</b></p> <ul style="list-style-type: none"><li>• Trying to change the attitudes and behaviour of others</li><li>• Controls how others do their work</li><li>• Needs to be in charge of all situations.</li></ul> <p><b>1.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Dominate</li><li>• Impose</li><li>• Modify</li><li>• Hostile</li><li>• Manipulate</li><li>• Restrict</li></ul> <p><b>2. Supportive pole (Problem Orientation)</b></p> <ul style="list-style-type: none"><li>• Problem orientation uses language that is not overtly controlling or persuasive, but instead it is focussed on a desire for collaboration.</li><li>• The sender will use language that seeks a mutual definition of the problem and will imply that there is no predetermined attitude, solution or method to impose and are usually open to finding the best solution to a problem (Gibb 1961; Czech &amp; Forward 2013:12).</li><li>• A speaker that is problem orientated tends to be non-directive and refrain from imposing a set of values, a point of view or a problem solution upon the receiver.</li><li>• Non-controllers thus, have to earn the perceptions that their motives harbour no hidden agendas (Gibb 1988:3).</li></ul> <p><b>2.1 Positive behaviour</b></p> <ul style="list-style-type: none"><li>▪ Defining problems for understanding and making others aware of it.</li><li>▪ Not imposing a set of values/ point of view on others.</li><li>▪ Seeking the best solution to a problem.</li></ul> <p><b>2.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Collaborate</li><li>• Non-direct</li><li>• Facilitate</li><li>• Define</li><li>• Simplify</li></ul> |
|---|

**Table J.3: Criteria for the poles of the Strategy-Spontaneity Continuum**

|   |
|---|
| <p><b>C. Strategy-Spontaneity Continuum</b></p> <p><b>1. Defensive pole (Strategy)</b></p> <ul style="list-style-type: none"><li>• Gibb (1961 cited in Czech &amp; Forward 2013:12) states that strategy as communication behaviour implies hidden motives and deceit, alluding to dishonesty and manipulation in relationships (Adler et al 2009:205; Buchanan &amp; Huczynski 2010:228).</li><li>• It is a natural that feeling manipulated will lead to defensiveness.</li><li>• When a listener perceives a sender as engaged in strategic communication, involving ambiguous and multiple motivations, the listener will become defensive because nobody wants to be a role player, guinea pig, an impressed actor or a victim of some hidden motivation (Gibb 1988:3).</li></ul> <p><b>1.1 Negative behaviour</b></p> <ul style="list-style-type: none"><li>• Manipulating others to make oneself to look good.</li><li>• Misinterpreting what others are saying.</li><li>• Twisting and distorting the words of others.</li></ul> <p><b>1.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Deceive</li><li>• Dishonest</li><li>• Manipulate</li><li>• Misinterpret</li><li>• Hide</li></ul> <p><b>2 Supportive pole (Spontaneity)</b></p> <ul style="list-style-type: none"><li>• <i>Spontaneity</i> is explained by Gibb (1961) cited in Czech and Forward (2013:12) as directness (direct, frank, candid or straight manner (Dictionary.com), straightforwardness (honesty, openness and easy to do or understand) (Soanes et al 2009:1424) and honesty (behaviour that is free of deceit and which is truthful, sincere and genuine (Soanes et al 2009:683).</li><li>• Spontaneous responses to problems disclose true feelings and motives. Defence reductive behaviour is behaviour that appears to be spontaneous and free of deception.</li><li>• A speaker will in all probability arouse minimal defensiveness with a listener if he or she is perceived as having a clean id and uncomplicated motivations, as being straightforward and honest and if he or she is perceived as behaving spontaneously in response to the situation Gibb (1988:4).</li></ul> <p><b>2.1 Positive behaviour</b></p> <ul style="list-style-type: none"><li>▪ Having a clean id – harbouring no hidden motives.</li><li>▪ Being direct and straightforward with others.</li><li>▪ Behaving spontaneous in response to situations</li></ul> <p><b>2.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Truthful</li><li>• Open</li><li>• Direct</li><li>• Free</li><li>• Straightforward</li></ul> |
|---|

**Table J.4: Criteria for the poles of the Neutrality-Empathy Continuum**

|  |
|--|
| <p><b>D. Neutrality-Empathy Continuum</b></p> <p><b>1. Defensive pole (Neutrality)</b></p> <ul style="list-style-type: none"><li>• All group members have the desire to be perceived as valued, with special worth and as objects of concern and affection (Gibb 1988:4) and human beings express their feelings through verbal and non-verbal messages.</li><li>• When individuals respond with <i>neutrality</i>, they signal that they dismiss or are indifferent to the feelings of others (Gibb 1988:4).</li><li>• Although the concept <i>neutrality</i> sounds very positive it can signal indifference and a lack of commitment.</li><li>• Statements in neutral conversations may include: "I do not have time to listen to your troubles right now; I have work to do." Thus the speaker shows a lack of concern for the listeners' welfare (Gibb 1961 cited in Czech &amp; Forward 2013:12).</li></ul> <p><b>1.1 Negative behaviour</b></p> <ul style="list-style-type: none"><li>• Lacking interest in the problems of others.</li><li>• Becoming involved in conflicts.</li><li>• Rarely offering support during crises.</li></ul> <p><b>1.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Indifference</li><li>• Disinterest</li><li>• Unconcern</li><li>• Uncaring</li><li>• Detached</li></ul> <p><b>2 Supportive pole (Empathy)</b></p> <ul style="list-style-type: none"><li>• The term <i>empathy</i> is used by Gibb (1988:4) to contrast and oppose the term <i>neutrality</i>.</li><li>• <i>Empathy</i> is expressed through supportive communication, carrying respectful and caring messages.</li><li>• It is useful in creating supportive communication climates.</li><li>• When individuals respond to others with <i>empathy</i>, they signal that they acknowledge and accept the feelings of others (Gibb 1988:4).</li><li>• "Communication that conveys empathy for the feelings and respect for the worth of the listener is particularly supportive and defence reductive" (Gibb 1988:4).</li><li>• Spontaneous facial and bodily evidences of concern (used as cues in communicating <i>empathy</i>) are interpreted as valid evidence of deep-level acceptance (Gibb 1988:4).</li></ul> <p><b>2.1 Positive behaviour</b></p> <ul style="list-style-type: none"><li>▪ Using speech that is affective and respectful.</li><li>▪ Sharing the problems and feelings of others.</li><li>▪ Using spontaneous facial and body evidence to show concern.</li></ul> <p><b>2.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Respect</li><li>• Accept</li><li>• Share</li><li>• Affectionate</li><li>• Identify</li></ul> |
|--|



**Table J.5: Criteria for the poles of the Superiority-Equality Continuum**

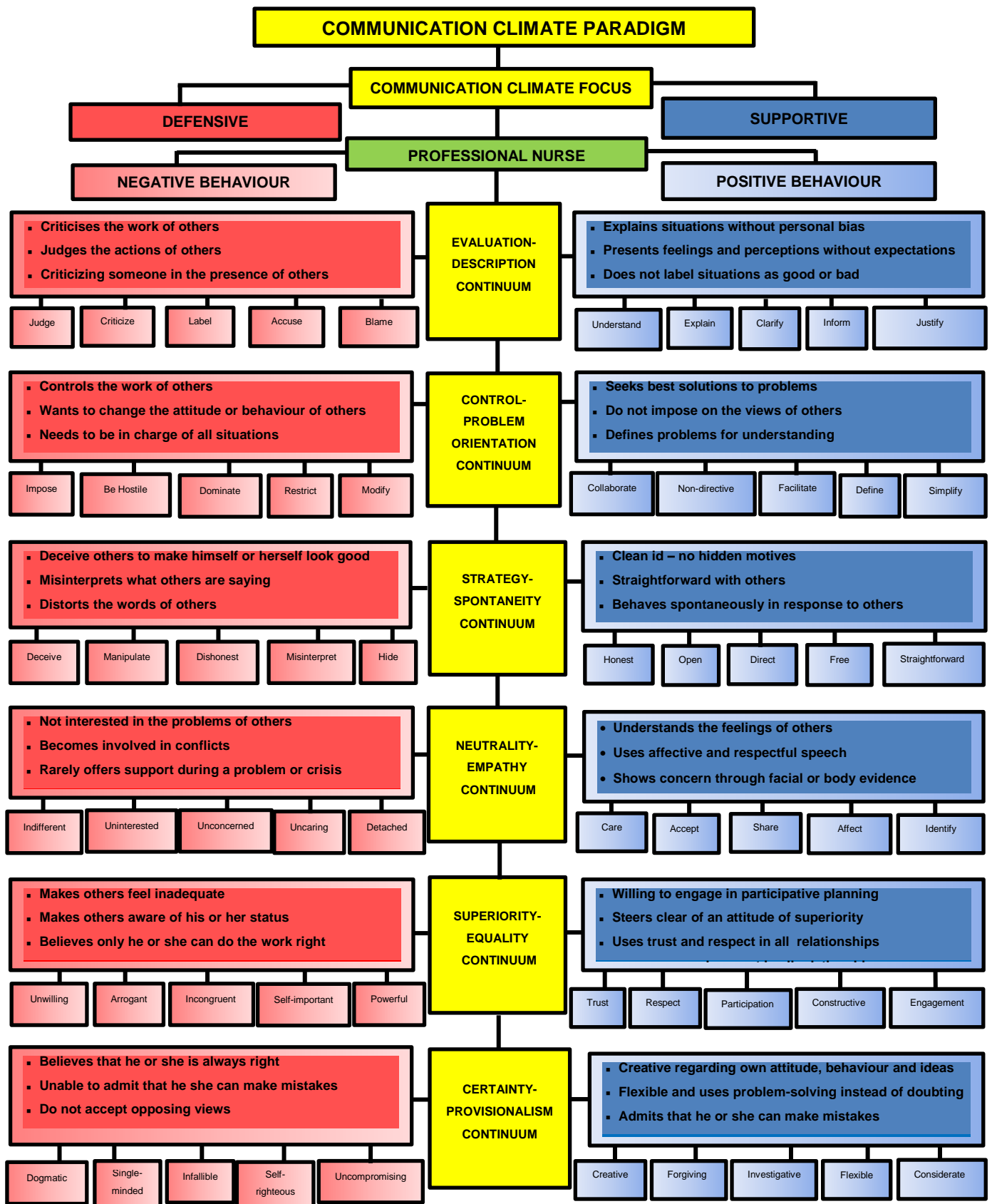
|  |
|--|
| <p><b>E. Superiority-Equality Continuum</b></p> <p><b>1. Defensive pole (Superiority)</b></p> <ul style="list-style-type: none"><li>• A person can arouse defensive behaviour in others by communicating that he or she feels <i>superior</i> in position, power, intellectual ability, wealth, physical characteristics, or other ways (Gibb 1961 cited in Czech &amp; Forward 2013:12).</li><li>• Whichever one of these ways arise feelings of inadequacy in the listener causes him or her to concentrate upon the affect loading of the statement and not on the cognitive elements (Gibb 1988:4).</li><li>• The receiver consequently reacts by not hearing the message, forgetting the message, competing with the sender or becoming jealous of the sender.</li><li>• An individual, perceived as superior, will communicate his or her unwillingness to engage in a collective problem-solving relationship, non-desire for feedback and non-need for help.</li><li>• He or she will also, most likely, attempt to reduce the power, status/worth of the receiver.</li></ul> <p><b>1.1 Negative behaviour</b></p> <ul style="list-style-type: none"><li>• Making others feel inadequate or inferior.</li><li>• Making others aware of higher status.</li><li>• Believing that only he or she can do the work right</li></ul> <p><b>1.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Unwilling</li><li>• Arrogant</li><li>• Incongruent</li><li>• Self-important</li><li>• Powerful</li></ul> <p><b>2 Supportive pole (Equality)</b></p> <ul style="list-style-type: none"><li>• Gibb (1961) draws the connection between treating another person as an equal by expressing mutual trust and demonstrating genuine openness to his or her views.</li><li>• The willingness to listen to another person's ideas is a part of the supportive behaviour of being problem oriented.</li><li>• Equality has the potential to create positive communication climates, as the ideas that are shared are not evaluated according to who shared them, but according to how constructive they are (Adler et al 2009:205), for example when a sender is perceived as willing to engage into participative planning with mutual trust and respect, defences are reduced (Gibb 1988:4).</li></ul> <p><b>2.1 Positive behaviour</b></p> <ul style="list-style-type: none"><li>▪ Willingness to engage in participative planning.</li><li>▪ Using mutual trust and respect in all relationships.</li><li>▪ Steering clear of an attitude of superiority.</li></ul> <p><b>2.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Trust</li><li>• Openness</li><li>• Shared</li><li>• Participate</li><li>• Respect</li></ul> |
|--|

**Table J.6: Criteria for the poles of the Certainty-Provisionalism Continuum**

|   |
|---|
| <p><b>F. Certainty-Provisionalism Continuum</b></p> <p><b>1. Defensive pole (Certainty)</b></p> <ul style="list-style-type: none"><li>• Certainty is defined as dogmatic, single-minded behaviour which is combined with an unwillingness to compromise (Gibb 1961 cited in Czech &amp; Forward 2013:12).</li><li>• The effects of dogmatism, in producing defensiveness, are putting others on guard due to those individuals who seem to know everything, who require no additional information and who regard themselves as instructors rather than as co-workers (Gibb 1988:5).</li><li>• Individuals communicating with <i>certainty</i> send messages implying that they are right, that their way is the only way and that they require no further information on a matter. They use terms such as <i>can't</i>, <i>never</i> and <i>always</i>.</li><li>• Individuals who stick to certainty (disregarding the views of others) tend to communicate a lack of interest in what others perceive to be important (Gibb 1961:141; Adler et al 2009:205). Listeners often perceive dogmatic manifested expressions of <i>certainty</i> as implied inward feelings of inferiority on the side of the speaker. In this perception the speaker is viewed as someone who is in need of being right, wanting to win an argument instead of solving a problem and viewing his or her ideas to be defended (Gibb 1988:5).</li></ul> <p><b>1.1 Negative behaviour</b></p> <ul style="list-style-type: none"><li>• Inability to admit to making mistakes</li><li>• Thinking that one is always right.</li><li>• Not accepting opposing points of view.</li></ul> <p><b>1.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Dogmatic</li><li>• Uncompromising</li><li>• Self-right</li><li>• Infallible</li><li>• Single-minded</li></ul> <p><b>2 Supportive pole (Provisionalism)</b></p> <ul style="list-style-type: none"><li>• “The person who appears to be taking provisional attitudes, to be investigating issues rather than taking sides on them, to be problem-solving rather than doubting, and be willing to experiment and explore tends to communicate that the listener may have some control over the shared quest or the investigation of the ideas” (Gibb 1988:5).</li><li>• A speaker can reduce defensiveness in a listener by communicating willingness to experiment (trying out new things) (Soanes 2009:501) with his or her own behaviour, attitudes and ideas (Gibb 1988:5).</li></ul> <p><b>2.1 Positive behaviour</b></p> <ul style="list-style-type: none"><li>▪ Being creative – experimenting with own attitude, behaviour and ideas.</li><li>▪ Being flexible – using problem-solving rather than doubting.</li><li>▪ Investigating issues rather than taking sides.</li></ul> <p><b>2.2 Concepts</b></p> <ul style="list-style-type: none"><li>• Creative</li><li>• Forgiving</li><li>• Investigative</li><li>• Flexible</li><li>• Considerate</li></ul> |
|---|

**ANNEXURE K**

CONCEPTUAL FRAMEWORK:  
THE GIBB'S DEFENSIVE COMMUNICATION CLIMATE PARADIGM (1961)



**FIGURE 1.1: SCHEMATIC PRESENTATION OF GIBB'S DEFENSIVE COMMUNICATION CLIMATE PARADIGM**

**Source:** Adapted from Gibb, JR. 1961. Defensive Communication. *Journal of Communication*, (11):141-148 and Costigan, JI & Schmeidler, MA.1984. Exploring supportive and defensive communication climates.

**ANNEXURE L**

STATISTICAL SIGNIFICANCE TESTING:  
INDIVIDUAL T-TEST RESULTS  
AND ENLARGED COPIES OF SPECIFIC TABLES

**Matched pairs t-test: comparison of the respondents' communication behaviour with regard to the six conceptual continuums**

Differences between the means of the respondents' communication behaviour with regard to the six conceptual continuums (constructs) were tested with Paired *t*-tests. The output of these tests is depicted in Table: L.1

**Table L.1: Matched pair *t*-tests for PN communication behaviour construct**

|         | Gibb's conceptual continuums    | Mean | Standard Deviation | t-Ratio  | Mean Difference | p-value | Standard Error | Upper confidence interval 95% | Lower confidence interval 95% | N   | DF  | Correlation |
|---------|---------------------------------|------|--------------------|----------|-----------------|---------|----------------|-------------------------------|-------------------------------|-----|-----|-------------|
| Pair 1  | PN: Control-Problem Orientation | 5.11 | 1.17               | 4.360039 | 0.22988         | <0.0001 | 0.05272        | 0.33368                       | 0.12607                       | 270 | 269 | 0.77059     |
|         | PN: Evaluation-Description      | 4.88 | 1.34               |          |                 |         |                |                               |                               |     |     |             |
| Pair 2  | PN: Strategy-Spontaneity        | 4.66 | 1.59               | -3.00193 | -0.2226         | >0.0029 | 0.07415        | -0.0766                       | -0.3686                       | 270 | 269 | 0.66677     |
|         | PN: Evaluation-Description      | 4.88 | 1.34               |          |                 |         |                |                               |                               |     |     |             |
| Pair 3  | PN: Strategy-Spontaneity        | 4.66 | 1.59               | -7.20242 | -0.4525         | <0.0001 | 0.06282        | -0.3288                       | -0.5762                       | 270 | 269 | 0.76118     |
|         | PN: Control-Problem Orientation | 5.11 | 1.17               |          |                 |         |                |                               |                               |     |     |             |
| Pair 4  | PN: Neutrality-Empathy          | 4.72 | 1.53               | -2.06133 | -0.1681         | >0.0402 | 0.08157        | -0.0075                       | -0.3288                       | 270 | 269 | 0.57242     |
|         | PN: Evaluation-Description      | 4.88 | 1.34               |          |                 |         |                |                               |                               |     |     |             |
| Pair 5  | PN: Neutrality-Empathy          | 4.72 | 1.53               | -6.07165 | -0.398          | <0.0001 | 0.06555        | -0.269                        | -0.5271                       | 270 | 269 | 0.71341     |
|         | PN: Control-Problem Orientation | 5.11 | 1.17               |          |                 |         |                |                               |                               |     |     |             |
| Pair 6  | PN: Neutrality-Empathy          | 4.72 | 1.53               | 1.056957 | 0.05444         | >0.2915 | 0.05151        | 0.15586                       | -0.047                        | 270 | 269 | 0.85378     |
|         | PN: Strategy-Spontaneity        | 4.66 | 1.59               |          |                 |         |                |                               |                               |     |     |             |
| Pair 7  | PN: Superiority-Equality        | 4.55 | 1.54               | -4.00939 | -0.3343         | <0.0001 | 0.08338        | -0.1702                       | -0.4985                       | 270 | 269 | 0.55674     |
|         | PN: Evaluation-Description      | 4.88 | 1.34               |          |                 |         |                |                               |                               |     |     |             |
| Pair 8  | PN: Superiority-Equality        | 4.55 | 1.54               | -8.32473 | -0.5642         | <0.0001 | 0.06777        | -0.4308                       | -0.6976                       | 270 | 269 | 0.69527     |
|         | PN: Control-Problem Orientation | 5.11 | 1.17               |          |                 |         |                |                               |                               |     |     |             |
| Pair 9  | PN: Superiority-Equality        | 4.55 | 1.54               | -1.82558 | -0.1117         | >0.0690 | 0.0612         | 0.00877                       | -0.2322                       | 270 | 269 | 0.79447     |
|         | PN: Strategy-Spontaneity        | 4.66 | 1.59               |          |                 |         |                |                               |                               |     |     |             |
| Pair 10 | PN: Superiority-Equality        | 4.55 | 1.54               | -3.49788 | -0.1662         | >0.0005 | 0.04751        | -0.0726                       | -0.2597                       | 270 | 269 | 0.87128     |
|         | PN: Neutrality-Empathy          | 4.72 | 1.53               |          |                 |         |                |                               |                               |     |     |             |
| Pair 11 | PN: Certainty-Provisionalism    | 4.89 | 1.45               | 0.077099 | 0.00642         | >0.9386 | 0.08327        | 0.17036                       | -0.1575                       | 270 | 269 | 0.52303     |
|         | PN: Evaluation-Description      | 4.88 | 1.34               |          |                 |         |                |                               |                               |     |     |             |
| Pair 12 | PN: Certainty-Provisionalism    | 4.89 | 1.45               | -3.29372 | -0.2235         | >0.0011 | 0.06784        | -0.0899                       | -0.357                        | 270 | 269 | 0.65785     |
|         | PN: Control-Problem Orientation | 5.11 | 1.17               |          |                 |         |                |                               |                               |     |     |             |
| Pair 13 | PN: Certainty-Provisionalism    | 4.89 | 1.45               | 3.442537 | 0.22901         | >0.0007 | 0.06652        | 0.35999                       | 0.09804                       | 270 | 269 | 0.74549     |
|         | PN: Strategy-Spontaneity        | 4.66 | 1.59               |          |                 |         |                |                               |                               |     |     |             |
| Pair 14 | PN: Certainty-Provisionalism    | 4.89 | 1.45               | 3.255182 | 0.17457         | >0.0013 | 0.05363        | 0.28015                       | 0.06898                       | 270 | 269 | 0.82712     |
|         | PN: Neutrality-Empathy          | 4.72 | 1.53               |          |                 |         |                |                               |                               |     |     |             |
| Pair 15 | PN: Certainty-Provisionalism    | 4.89 | 1.45               | 7.517733 | 0.34074         | <0.0001 | 0.04532        | 0.42998                       | 0.2515                        | 270 | 269 | 0.87813     |
|         | PN: Superiority-Equality        | 4.55 | 1.54               |          |                 |         |                |                               |                               |     |     |             |

**p < 0.05**

The analysis of the paired-sample *t*-test results, as displayed in Table L.1, indicated that the results for:

- Pair 1 revealed a significant difference between the PN: Control-Problem Orientation and the PN: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = 4.36$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly higher in the PN: Control- Problem Orientation construct (Mean = 5.11) than the PN: Evaluation-Description construct (Mean = 4.88). The observed difference between these scores was 0.23, and the 95% confidence interval for the difference extended from 0.12 to 0.33. In this case the  $p$ -value is smaller than 0.05, thus the PN: Control-Problem Orientation and PN: Evaluation-Description scores differ significantly at a 99% level of confidence.

- Pair 2 revealed a significant difference between the PN: Strategy-Spontaneity and PN: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = -3.00$ ;  $p > 0.0029$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the PN: Strategy-Spontaneity construct (Mean = 4.66) than the PN: Evaluation-Description construct (Mean = 4.88). The observed difference between the two scores was -0.22, and the 95% confidence interval for the difference extended from -0.37 to -0.08. In this case the  $p$ -value is larger than 0.05, therefore the PN: Strategy-Spontaneity and PN: Evaluation-Description scores differ significantly at a 99% level of confidence.
- Pair 3 revealed a significant difference between the PN: Strategy-Spontaneity and the PN: Control-Problem Orientation constructs in the mean scores observed in the two constructs,  $t(269) = 7.20$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the PN: Strategy-Spontaneity construct (Mean = 4.66) than the PN: Control-Problem Orientation construct (Mean = 5.11). The observed difference between the two scores was 0.45, and the 95% confidence interval for the difference extended from -0.58 to -0.33. In this case the  $p$ -value is smaller than 0.05, therefore the PN: Strategy-Spontaneity and PN: Control-Problem Orientation scores differ significantly at a 99% level of confidence.
- Pair 4 revealed a significant difference between the PN: Neutrality-Empathy and the PN: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = -2.06$ ;  $p > 0.0402$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the PN: Neutrality-Empathy construct (Mean = 4.72) than the PN: Evaluation-Description construct (Mean = 4.88). The observed difference between the two scores was -0.16, and the 95% confidence interval for the difference extended from -0.33 to -0.01. In this case the  $p$ -value is larger than 0.05, therefore the PN: Neutrality-Empathy and PN: Evaluation-Description scores differ significantly at a 99% level of confidence.
- Pair 5 revealed a significant difference between the PN: Neutrality-Empathy and the PN: Control-Problem Orientation constructs in the mean scores observed in the two constructs,  $t(269) = -6.07$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the PN: Neutrality-Empathy construct (Mean = 4.72) than the PN: Control-Problem Orientation construct (Mean = 5.11). The observed difference between the two scores was -0.39, and the 95% confidence interval for the difference extended from -0.53 to -0.27. In this case the  $p$ -value is smaller than 0.05, therefore the PN: Neutrality-Empathy and PN: Control-Problem Orientation scores differ significantly at a 99% level of confidence.
- Pair 6 revealed a significant difference between the PN: Neutrality-Empathy and the PN: Strategy-Spontaneity constructs in the mean scores observed in the two constructs,  $t(269) = 1.06$ ;  $p > 0.2915$ . The sample means, displayed in the output, shows that the mean information score appear significantly higher in the PN: Neutrality-Empathy construct (Mean = 4.72) than the PN: Strategy-Spontaneity construct (Mean = 4.66). The observed difference between these scores was 0.06, and the 95% confidence interval for the difference extended from -0.05 to 0.16.

With such an interval range that extends over zero it is possible that the difference is zero, indicating no difference between the two constructs at all. In this case the  $p$ -value is larger than 0.05, therefore the PN: Neutrality-Empathy and the PN: Strategy-Spontaneity scores differ significantly at a 99% level of confidence.

- Pair 7 revealed a significant difference between the PN: Superiority-Equality and the PN: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = -4.01$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the PN: Superiority-Equality construct (Mean = 4.55) than the PN: Evaluation-Description construct (Mean = 4.88). The observed difference between the two scores was -0.33, and the 95% confidence interval for the difference extended from -0.50 to -0.17. In this case the  $p$ -value is smaller than 0.05, therefore the PN: Superiority-Equality and the PN: Evaluation-Description scores differ significantly at a 99% level of confidence.
- Pair 8 revealed significant difference between the PN: Superiority-Equality and the PN: Control-Problem Orientation constructs in the mean scores observed in the two constructs,  $t(269) = -8.32$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the PN: Superiority-Equality construct (Mean = 4.55) than the PN: Control-Problem Orientation construct (Mean = 5.11). The observed difference between the two scores was -0.56, and the 95% confidence interval for the difference extended from -0.70 to -0.43. In this case the  $p$ -value is smaller than 0.05, thus the PN: Superiority-Equality and the PN: Control-Problem Orientation scores differ significantly at a 99% level of confidence.
- Pair 9 revealed a significant difference between the PN: Superiority-Equality and the PN: Strategy-Spontaneity constructs in the mean scores observed in the two constructs,  $t(269) = -1.83$ ;  $p > 0.0690$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the PN: Superiority-Equality construct (Mean = 4.55) than the PN: Strategy-Spontaneity construct (Mean = 4.66). The observed difference between the two scores was -0.11, and the 95% confidence interval for the difference extended from -0.23 to 0.01. With an interval range that extends over zero it is possible that the difference is zero, indicating no difference between the two constructs. In this case the  $p$ -value is larger than 0.05, thus the PN: Superiority-Equality and the PN: Strategy-Spontaneity scores differ significantly at a 99% level of confidence.
- Pair 10 revealed a significant difference between the PN: Superiority-Equality and the PN: Neutrality-Empathy constructs in the mean scores observed in the two constructs,  $t(269) = -3.50$ ;  $p > 0.0005$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the PN: Superiority-Equality construct (Mean = 4.55) than the PN: Neutrality-Empathy construct (Mean = 4.72). The observed difference between the two scores was -0.17, and the 95% confidence interval for the difference extended from -0.30 to -0.10. In this case the  $p$ -value is larger than 0.05, thus the PN: Superiority-Equality and the PN: Neutrality-Empathy scores differ significantly at a 99% level of confidence.



- Pair 11 revealed a significant difference between the PN: Certainty-Provisionalism and the PN: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = 0.08$ ;  $p > 0.9386$ . The sample means, displayed in the output, shows that the mean information score appear significantly higher in the PN: Certainty-Provisionalism construct (Mean = 4.89) than the PN: Evaluation-Description construct (Mean = 4.88). The observed difference between these scores was 0.01, and the 95% confidence interval for the difference extended from -0.16 to 0.17. With an interval range extending over zero it is possible that the difference is zero, indicating no difference between the two constructs. In this case the  $p$ -value is larger than 0.05, thus the PN: Certainty-Provisionalism and PN: Evaluation-Description scores significantly differ at a 99% level of confidence.
- Pair 12 revealed significant difference between the PN: Certainty-Provisionalism and the PN: Control-Problem Orientation constructs in the mean scores observed in the two constructs,  $t(269) = -3.30$ ;  $p > 0.0011$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the PN: Certainty-Provisionalism construct (Mean = 4.89) than PN: Control-Problem Orientation construct (Mean = 5.11). The observed difference between the two scores was -0.22, and the 95% confidence interval for the difference extended from -0.36 to -0.09. In this case the  $p$ -value is larger than 0.05, thus the PN: Certainty-Provisionalism and PN: Control-Problem Orientation scores differ significantly at a 99% level of confidence.
- Pair 13 revealed a significant difference between the PN: Certainty-Provisionalism and the PN: Strategy-Spontaneity constructs in the mean scores observed in the two constructs,  $t(269) = 3.44$ ;  $p > 0.0007$ . The sample means, displayed in the output, shows that the mean information score appear significantly higher in the PN: Certainty-Provisionalism construct (Mean = 4.89) than the PN: Strategy-Spontaneity construct (Mean = 4.66). The observed difference between these scores was 0.23, and the 95% confidence interval for the difference extended from 0.10 to 0.36. In this case the  $p$ -value is larger than 0.05, thus the PN: Certainty-Provisionalism and PN: Strategy-Spontaneity scores differ significantly at a 99% level of confidence.
- Pair 14 revealed a significant difference between the PN: Certainty-Provisionalism and the PN: Neutrality-Empathy constructs in the mean scores observed in the two constructs,  $t(269) = 3.26$ ;  $p > 0.0013$ . The sample means, displayed in the output, shows that the mean information score appear significantly higher in the PN: Certainty-Provisionalism construct (Mean = 4.89) than the PN: Neutrality-Empathy construct (Mean = 4.72). The observed difference between the two scores was 0.17, and the 95% confidence interval for the difference extended from 0.07 to 0.28. In this case the  $p$ -value is larger than 0.05, thus the PN: Certainty-Provisionalism and the PN: Neutrality-Empathy scores differ significantly at a 99% level of confidence.
- Pair 15 revealed a significant difference between the PN: Certainty-Provisionalism and PN: Superiority-Equality constructs in the mean scores observed in the two constructs,  $t(269) = 7.52$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly higher in the PN: Certainty-Provisionalism construct (Mean = 4.89) than the PN: Superiority-Equality construct (Mean = 4.55).

The observed difference between these scores was 0.34, and the 95% confidence interval for the difference extended from 0.25 to 0.43. In this case the  $p$ -value is smaller than 0.05, therefore the PN: Certainty-Provisionalism and PN: Superiority-Equality scores differ significantly at a 99% level of confidence.

It can be deduced that the majority of the correlations in the conceptual continuums are high, as indicated in Table L.1, and were above 0.5. A significant difference was noted in all the tested pairs of constructs. Only pairs 6, 9 and 11 out of the 15 tested pairs, had confidence interval ranges extending over zero and could have small potential relationship with one another. The results thus reveal that there are insignificant relationship between the six constructs and the PN communication behaviour orientation.

***Matched pairs t-test: comparison of the respondents' perceptions of OM communication behaviour with regard to the conceptual continuums***

Differences between the means of the respondents' perception of OM communication behaviours with regard to the six conceptual continuums (constructs) were tested with Paired T-tests. The output of these tests is depicted in Table L.2:

**Table L.2: Matched pair  $t$ -tests for OM communication behaviour per construct**

|         | Gibb's conceptual continuums                                    | Mean         | Standard Deviation | t-Ratio  | Mean Difference | $p$ -value | Standard Error | Upper confidence interval 95% | Lower confidence interval 95% | N   | DF  | Correlation |
|---------|---|--------------|--------------------|----------|-----------------|------------|----------------|-------------------------------|-------------------------------|-----|-----|-------------|
| Pair 1  | OM: Control-Problem Orientation<br>OM: Evaluation-Description   | 4.61<br>4.63 | 1.55<br>1.36       | -0.27311 | -0.0173         | >0.7850    | 0.06329        | 0.10732                       | -0.1419                       | 270 | 269 | 0.75097     |
| Pair 2  | OM: Strategy-Spontaneity<br>OM: Evaluation-Description          | 4.18<br>4.63 | 1.70<br>1.36       | -5.76124 | -0.4451         | < 0.0001   | 0.07725        | -0.293                        | -0.5972                       | 270 | 269 | 0.67712     |
| Pair 3  | OM: Strategy-Spontaneity<br>OM: Control-Problem Orientation     | 4.18<br>4.61 | 1.70<br>1.55       | -7.11549 | -0.4278         | < 0.0001   | 0.06012        | -0.3094                       | -0.5461                       | 270 | 269 | 0.81915     |
| Pair 4  | OM: Neutrality-Empathy<br>OM: Evaluation-Description            | 4.37<br>4.63 | 1.66<br>1.36       | -3.35813 | -0.2563         | >0.0009    | 0.07632        | -0.106                        | -0.4066                       | 270 | 269 | 0.67182     |
| Pair 5  | OM: Neutrality-Empathy<br>OM: Control-Problem Orientation       | 4.37<br>4.61 | 1.66<br>1.55       | -3.8773  | -0.239          | < 0.0001   | 0.06164        | -0.1176                       | -0.3604                       | 270 | 269 | 0.80275     |
| Pair 6  | OM: Neutrality-Empathy<br>OM: Strategy-Spontaneity              | 4.37<br>4.18 | 1.66<br>1.70       | 3.571679 | 0.18877         | >0.0004    | 0.05285        | 0.29282                       | 0.08471                       | 270 | 269 | 0.86688     |
| Pair 7  | OM: Superiority-Equality<br>OM: Evaluation-Description          | 4.49<br>4.63 | 1.53<br>1.36       | -1.81399 | -0.137          | >0.0708    | 0.07554        | 0.0117                        | -0.2858                       | 270 | 269 | 0.63528     |
| Pair 8  | OM: Superiority-Equality<br>OM: Control-Problem Orientation     | 4.49<br>4.61 | 1.53<br>1.55       | -1.8751  | -0.1198         | >0.0619    | 0.06387        | 0.00599                       | -0.2455                       | 270 | 269 | 0.76663     |
| Pair 9  | OM: Superiority-Equality<br>OM: Strategy-Spontaneity            | 4.49<br>4.18 | 1.53<br>1.70       | 5.030093 | 0.30802         | < 0.0001   | 0.06124        | 0.42859                       | 0.18746                       | 270 | 269 | 0.81101     |
| Pair 10 | OM: Superiority-Equality<br>OM: Neutrality-Empathy              | 4.49<br>4.37 | 1.53<br>1.66       | 2.213856 | 0.11926         | > 0.0277   | 0.05387        | 0.22532                       | 0.0132                        | 270 | 269 | 0.849       |
| Pair 11 | OM: Certainty-Provisionalism<br>OM: Evaluation-Description      | 4.12<br>4.63 | 1.66<br>1.36       | -5.91825 | -05.093         | < 0.0001   | 0.08605        | -0.3398                       | -0.6787                       | 270 | 269 | 0.57833     |
| Pair 12 | OM: Certainty-Provisionalism<br>OM: Control-Problem Orientation | 4.12<br>4.61 | 1.66<br>1.55       | -6.61459 | -0.492          | < 0.0001   | 0.07438        | -0.3455                       | -0.6384                       | 270 | 269 | 0.7122      |
| Pair 13 | OM: Certainty-Provisionalism<br>OM: Strategy-Spontaneity        | 4.12<br>4.18 | 1.66<br>1.70       | -0.91725 | -0.0642         | > 0.3598   | 0.06999        | 0.0736                        | -0.202                        | 270 | 269 | 0.76663     |
| Pair 14 | OM: Certainty-Provisionalism<br>OM: Neutrality-Empathy          | 4.12<br>4.37 | 1.66<br>1.66       | -3.93708 | -0.253          | < 0.0001   | 0.06425        | -0.1265                       | -0.3795                       | 270 | 269 | 0.79824     |
| Pair 15 | OM: Certainty-Provisionalism<br>OM: Superiority-Equality        | 4.12<br>4.49 | 1.66<br>1.53       | -7.74815 | -0.3722         | < 0.0001   | 0.04804        | -0.2776                       | -0.4668                       | 270 | 269 | 0.88095     |

$p < 0.05$

The analysis of the paired-sample  $t$ -test results, as displayed in Table L.2, indicated that the results for:

- Pair 1 revealed a significant difference between the OM: Control-Problem Orientation and the OM: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = -0.27$ ;  $p > 0.7850$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Control- Problem Orientation construct (Mean = 4.61) than the OM: Evaluation-Description construct (Mean = 4.63). The observed difference between these scores was 0.02, and the 95% confidence interval for the difference extended from -0.14 to 0.11. With an interval range that extends over zero it is possible that the difference is zero, indicating no difference between the two constructs. In this case the  $p$ -value is larger than 0.05, thus the OM: Control-Problem Orientation and OM: Evaluation-Description scores differ significantly at a 99% level of confidence.
- Pair 2 revealed a significant difference between the OM: Strategy-Spontaneity and OM: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = -5.76$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Strategy-Spontaneity construct (Mean = 4.18) than the OM: Evaluation-Description construct (Mean = 4.63). The observed difference between the two scores was -0.45, and the 95% confidence interval for the difference extended from -0.60 to -0.30. In this case the  $p$ -value is smaller than 0.05, therefore the OM: Strategy-Spontaneity and OM: Evaluation-Description scores differ significantly at a 99% level of confidence.
- Pair 3 revealed a significant difference between the OM: Strategy-Spontaneity and the OM: Control-Problem Orientation constructs in the mean scores observed in the two constructs,  $t(269) = -7.12$ ;  $p > 0.4278$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Strategy-Spontaneity construct (Mean = 4.18) than the OM: Control-Problem Orientation construct (Mean = 4.61). The observed difference between the two scores was -0.43, and the 95% confidence interval for the difference extended from -0.55 to -0.31. In this case the  $p$ -value is larger than 0.05, thus the OM: Strategy-Spontaneity and OM: Control-Problem Orientation scores differ significantly at a 99% level of confidence.
- Pair 4 revealed a significant difference between the OM: Neutrality-Empathy and the OM: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = -3.36$ ;  $p > 0.0009$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Neutrality-Empathy construct (Mean = 4.37) than the OM: Evaluation-Description construct (Mean = 4.63). The observed difference between the two scores was -0.26, and the 95% confidence interval for the difference extended from -0.41 to -0.11. In this case the  $p$ -value is larger than 0.05, thus the OM: Neutrality-Empathy and OM: Evaluation-Description scores differ significantly at a 99% level of confidence.
- Pair 5 revealed a significant difference between the OM: Neutrality-Empathy and the OM: Control-Problem Orientation constructs in the mean scores observed in the two constructs,  $t(269) = -3.88$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Neutrality-Empathy construct (Mean = 4.37) than the OM: Control-Problem Orientation construct (Mean = 4.61).

The observed difference between the two scores was -0.24, and the 95% confidence interval for the difference extended from -0.40 to -0.12. In this case the  $p$ -value is smaller than 0.05, thus the OM: Neutrality-Empathy and OM: Control-Problem Orientation scores differ significantly at a 99% level of confidence.

- Pair 6 revealed a significant difference between the OM: Neutrality-Empathy and the OM: Strategy-Spontaneity constructs in the mean scores observed in the two constructs,  $t(269) = 3.57$ ;  $p > 0.0004$ . The sample means, displayed in the output, shows that the mean information score appear significantly higher in the OM: Neutrality-Empathy construct (Mean = 4.37) than the OM: Strategy-Spontaneity construct (Mean = 4.18). The observed difference between these scores was 0.19, and the 95% confidence interval for the difference extended from 0.08 to 0.29. In this case the  $p$ -value is larger than 0.05, thus the OM: Neutrality-Empathy and the OM: Strategy-Spontaneity scores differ significantly at a 99% level of confidence.
- Pair 7 revealed a significant difference between the OM: Superiority-Equality and OM: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = -1.81$ ;  $p > 0.0708$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Superiority-Equality construct (Mean = 4.49) than the OM: Evaluation-Description construct (Mean = 4.63). The observed difference between the two scores was -0.14, and the 95% confidence interval for the difference extended from -0.28 to 0.01. An interval range that extends over zero could indicate a difference of zero, and no difference between the two constructs. In this case the  $p$ -value is larger than 0.05, thus OM: Superiority-Equality and OM: Evaluation-Description scores differ significantly at a 99% level of confidence.
- Pair 8 revealed significant difference between the OM: Superiority-Equality and the OM: Control-Problem Orientation constructs in the mean scores observed in the two constructs,  $t(269) = -1.88$ ;  $p < 0.0619$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Superiority-Equality construct (Mean = 4.49) than the OM: Control-Problem Orientation construct (Mean = 4.61). The observed difference between the two scores was -0.12, and the 95% confidence interval for the difference extended from -0.25 to 0.01. With an interval range that extends over zero it is possible that the difference is zero, indicating no difference between the two constructs. In this case the  $p$ -value is larger than 0.05, thus the OM: Superiority-Equality and the OM: Control-Problem Orientation scores differ significantly at a 99% level of confidence.
- Pair 9 revealed a significant difference between the OM: Superiority-Equality and the OM: Strategy-Spontaneity constructs in the mean scores observed in the two constructs,  $t(269) = 5.03$ ;  $p > 0.0619$ . The sample means, displayed in the output, shows that the mean information score appear significantly higher in the OM: Superiority-Equality construct (Mean = 4.49) than the OM: Strategy-Spontaneity construct (Mean = 4.18). The observed difference between the two scores was 0.31, and the 95% confidence interval for the difference extended from 0.19 to 0.43. In this case the  $p$ -value is larger than 0.05, thus the OM: Superiority-Equality and the OM: Strategy-Spontaneity scores differ significantly at a 99% level of confidence.

- Pair 10 revealed a significant difference between the OM: Superiority-Equality and the OM: Neutrality-Empathy constructs in the mean scores observed in the two constructs,  $t(269) = 2.21$ ;  $p > 0.0277$ . The sample means, displayed in the output, shows that the mean information score appear significantly higher in the OM: Superiority-Equality construct (Mean = 4.49) than the OM: Neutrality-Empathy construct (Mean = 4.37). The observed difference between the two scores was 0.12, and the 95% confidence interval for the difference extended from 0.01 to 0.23. In this case the  $p$ -value is larger than 0.05, thus the OM: Superiority-Equality and the OM: Neutrality-Empathy scores differ significantly at a 99% level of confidence.
- Pair 11 revealed a significant difference between the OM: Certainty-Provisionalism and the OM: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = -5.92$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Certainty-Provisionalism construct (Mean = 4.12) than the OM: Evaluation-Description construct (Mean = 4.63). The observed difference between these scores was -0.51, and the 95% confidence interval for the difference extended from -0.68 to -0.34. In this case the  $p$ -value is smaller than 0.05, thus the OM: Certainty-Provisionalism and OM: Evaluation-Description scores differ significantly at a 99% level of confidence.
- Pair 12 revealed significant difference between the OM: Certainty-Provisionalism and the OM: Control-Problem Orientation constructs in the mean scores observed in the two constructs,  $t(269) = -6.61$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Certainty-Provisionalism construct (Mean = 4.12) than the OM: Control-Problem Orientation construct (Mean = 4.61). The observed difference between the two scores was -0.49, and the 95% confidence interval for the difference extended from -0.64 to -0.35. In this case the  $p$ -value is smaller than 0.05, thus the OM: Certainty-Provisionalism and OM: Control-Problem Orientation scores differ significantly at a 99% level of confidence.
- Pair 13 revealed a significant difference between the OM: Certainty-Provisionalism and the OM: Strategy-Spontaneity constructs in the mean scores observed in the two constructs,  $t(269) = 0.92$ ;  $p > 0.3598$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Certainty-Provisionalism construct (Mean = 4.12) than the OM: Strategy-Spontaneity construct (Mean = 4.18). The observed difference between these scores was -0.06, and the 95% confidence interval for the difference extended from -0.20 to 0.07. With an interval range that extends over zero it is possible that the difference is zero, indicating no difference between the two constructs. In this case the  $p$ -value is larger than 0.05, thus the OM: Certainty-Provisionalism and OM: Strategy-Spontaneity scores differ significantly at a 99% level of confidence.
- Pair 14 revealed a significant difference between the OM: Certainty-Provisionalism and the OM: Neutrality-Empathy constructs in the mean scores observed in the two constructs,  $t(269) = 3.94$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Certainty-Provisionalism construct (Mean = 4.12) than the OM: Neutrality-Empathy construct (Mean = 4.37).

The observed difference between the two scores was -0.25, and the 95% confidence interval for the difference extended from -0.38 to -0.13. In this case the  $p$ -value is smaller than 0.05, thus the OM: Certainty-Provisionalism and the OM: Neutrality-Empathy scores differ significantly at a 99% level of confidence.

- Pair 15 revealed a significant difference between the OM: Certainty-Provisionalism and the OM: Superiority-Equality constructs in the mean scores observed in the two constructs,  $t(269) = -7.75$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Certainty-Provisionalism construct (Mean = 4.12) than the OM: Superiority-Equality construct (Mean = 4.49). The observed difference between these scores was -0.37, and the 95% confidence interval for the difference extended from 0.47 to 0.28. In this case the  $p$ -value is smaller than 0.05, thus the OM: Certainty-Provisionalism and OM: Superiority-Equality scores differ significantly at a 99% level of confidence.

It can be deduced that the majority of the correlations in the conceptual continuums are high, as indicated in Table 6.10, and were above 0.5. A significant difference was noted in all the tested pairs of constructs. Only pairs 1, 7 and 13 out of the 15 tested pairs, had confidence interval ranges extending over zero and could have small potential relationship with one another. The results thus reveal that the relationships between the six constructs and the OM communication behaviour orientation are insignificant.

***Matched pairs t-test: comparison of the respondents' communication behaviour and their perceptions of OM communication behaviour with regard to the conceptual continuums***

In Table L.3 the matched pairs PN  $t$ -test for comparison of the means of the PN communication behaviour with the means of the corresponding perceptions pertaining to the OMs for the six conceptual continuums, are displayed.

**Table L.3: Matched pair  $t$ -tests for PN communication behaviour and OM communication behaviour per construct**

|        | Gibb's conceptual continuums    | Mean | Standard Deviation | t-Ratio  | Mean Difference | $p$ -value | Standard Error | Upper confidence interval 95% | Lower confidence interval 95% | N   | DF  | Correlation |
|--------|---------------------------------|------|--------------------|----------|-----------------|------------|----------------|-------------------------------|-------------------------------|-----|-----|-------------|
| Pair 1 | OM: Evaluation-Description      | 4.63 | 1.34               | -5.57252 | -0.25           | < 0.0001   | 0.04626        | -0.1667                       | -0.3489                       | 270 | 269 | 0.8418      |
|        | PN: Evaluation-Description      | 4.88 | 1.36               |          |                 |            |                |                               |                               |     |     |             |
| Pair 2 | OM: Control-Problem Orientation | 4.61 | 1.55               | -9.03101 | -0.05           | < 0.0001   | 0.05591        | -0.3949                       | -0.615                        | 270 | 269 | 0.80567     |
|        | PN: Control-Problem Orientation | 5.11 | 1.17               |          |                 |            |                |                               |                               |     |     |             |
| Pair 3 | OM: Strategy-Spontaneity        | 4.18 | 1.70               | -10.699  | -0.48           | < 0.0001   | 0.04489        | -0.3919                       | 0.5686                        | 270 | 269 | 0.9018      |
|        | PN: Strategy-Spontaneity        | 4.66 | 1.59               |          |                 |            |                |                               |                               |     |     |             |
| Pair 4 | OM: Neutrality-Empathy          | 4.37 | 1.66               | -7.61066 | -0.35           | < 0.0001   | 0.04545        | -0.2564                       | -0.4354                       | 270 | 269 | 0.89366     |
|        | PN: Neutrality-Empathy          | 4.72 | 1.53               |          |                 |            |                |                               |                               |     |     |             |
| Pair 5 | OM: Superiority-Equality        | 4.49 | 1.53               | -1.3858  | -0.0605         | > 0.1670   | 0.04365        | 0.02545                       | -0.1464                       | 270 | 269 | 0.89084     |
|        | PN: Superiority-Equality        | 4.55 | 1.54               |          |                 |            |                |                               |                               |     |     |             |
| Pair 6 | OM: Certainty-Provisionalism    | 4.12 | 1.66               | -16.0105 | -0.7735         | < 0.0001   | 0.04831        | -0.6783                       | -0.8686                       | 270 | 269 | 0.87877     |
|        | PN: Certainty-Provisionalism    | 4.89 | 1.45               |          |                 |            |                |                               |                               |     |     |             |

$p < 0.05$

The analysis of the paired-sample T-test results, as displayed in Table L.3, indicated that the results for:

- Pair 1 revealed a significant difference between the OM: Evaluation-Description and the PN: Evaluation-Description constructs in the mean scores observed in the two constructs,  $t(269) = -5.57$ ;  $p < 0.001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Evaluation-Description construct (Mean = 4.63) than the PN: Evaluation-Description construct (Mean = 4.88). The observed difference between these scores was 0.25, and the 95% confidence interval for the difference extended from -0.35 to -0.20. In this case the  $p$ -value is smaller than 0.05, therefore the OM: Evaluation-Description and PN: Evaluation-Description scores differ significantly at a 99% level of confidence.
- Pair 2 revealed a significant difference between the OM: Control-Problem Orientation and PN: Control-Problem Orientation constructs in the mean scores observed in the two constructs,  $t(269) = -9.03$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Control-Problem Orientation construct (Mean = 4.61) than the PN: Control-Problem Orientation construct (Mean = 5.11). The observed difference between the two scores was -0.50, and the 95% confidence interval for the difference extended from -0.60 to -0.40. In this case the  $p$ -value is smaller than 0.05, thus the OM: Control-Problem Orientation and PN: Control-Problem Orientation scores differ significantly at a 99% level of confidence.
- Pair 3 revealed a significant difference between the OM: Strategy-Spontaneity and the PN: Strategy-Spontaneity constructs in the mean scores observed in the two constructs,  $t(269) = -10.70$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Strategy-Spontaneity construct (Mean = 4.18) than the PN: Strategy-Spontaneity construct (Mean = 4.66). The observed difference between the two scores was -0.48, and the 95% confidence interval for the difference extended from -0.57 to -0.39. In this case the  $p$ -value is smaller than 0.05, thus the OM: Strategy-Spontaneity and PN: Strategy-Spontaneity scores differ significantly at a 99% level of confidence.
- Pair 4 revealed a significant difference between the OM: Neutrality-Empathy and the PN: Neutrality-Empathy constructs in the mean scores observed in the two constructs,  $t(269) = -7.61$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Neutrality-Empathy construct (Mean = 4.37) than the PN: Neutrality-Empathy construct (Mean = 4.72). The observed difference between the two scores was -0.35, and the 95% confidence interval for the difference extended from -0.43 to -0.26. In this case the  $p$ -value is smaller than 0.05, therefore the OM: Neutrality-Empathy and PN: Neutrality-Empathy scores differ significantly at a 99% level of confidence.
- Pair 5 revealed a significant difference between the OM: Superiority-Equality and the PN: Superiority-Equality constructs in the mean scores observed in the two constructs,  $t(269) = -1.38$ ;  $p > 0.1670$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Superiority-Equality construct (Mean = 4.49) than the PN: Superiority-Equality construct (Mean = 4.55).

The observed difference between the two scores was -0.06, and the 95% confidence interval for the difference extended from -0.15 to 0.03. With an interval range that extends over zero it is possible that the difference is zero, indicating no difference and a relationship between the two constructs. In this case the  $p$ -value is larger than 0.05, thus the OM: Superiority-Equality and PN: Superiority-Equality scores differ significantly at a 99% level of confidence.

- Pair 6 revealed a significant difference between the OM: Certainty-Provisionalism and the PN: Certainty-Provisionalism constructs in the mean scores observed in the two constructs,  $t(269) = -16.01$ ;  $p < 0.0001$ . The sample means, displayed in the output, shows that the mean information score appear significantly lower in the OM: Certainty-Provisionalism construct (Mean = 4.12) than the PN: Certainty-Provisionalism construct (Mean = 4.89). The observed difference between these scores was -0.77, and the 95% confidence interval for the difference extended from -0.87 to -0.68. In this case the  $p$ -value is smaller than 0.05, thus the OM: Certainty-Provisionalism and the PN: Certainty-Provisionalism scores differ significantly at a 99% level of confidence.

It can be deduced that the majority of the correlations in the conceptual continuums are high, as indicated in Table L.3. A significant difference was noted in all the tested pairs of constructs except in Pair 5 where the confidence range extended over zero indicating a possible relationship. The results thus reveal that the relationships between the six constructs and the OM communication behaviour orientation are significant.

**Take Note:** Due to the inability of the computer system to indicate  $p$ -values that are smaller than 0.0001, (because there are too many figures to indicate), all the  $p$ -values were indicated as smaller than 0.05 and differing at a 95% level of confidence.



ANNEXURE L: ENLARGED COPIES OF SPECIFIC TABLES (AS PRESENTED IN THE THESIS)

TABLE 5.18: RATER (DELPHI PANEL MEMBER) FEEDBACK ON RESPONDENTS

| DPMs          | DPM 1 | DPM 2 | DPM 3 | DPM 4 | DPM 5 | DPM 6 | DPM 7 | DPM 8 | DPM 9 | DPM 10 | DPM 11 | DPM 12 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| Expertise     | BSE   | BSE   | BSE   | BSE   | NSE   | NSE   | NSE   | NSE   | CSE   | CSE    | CSE    | CSE    |
| Respondent 1  | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 2  | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 3  | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 4  | D     | D     | D     | D     | D     | D     | S     | D     | D     | S      | D      | D      |
| Respondent 5  | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 6  | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 7  | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 8  | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 9  | D     | D     | D     | D     | D     | D     | S     | D     | S     | D      | S      | D      |
| Respondent 10 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 11 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 12 | D     | D     | D     | D     | D     | D     | S     | S     | D     | D      | D      | D      |
| Respondent 13 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 14 | D     | D     | D     | D     | D     | D     | S     | D     | D     | D      | S      | S      |
| Respondent 15 | D     | D     | D     | D     | D     | D     | S     | S     | D     | D      | D      | D      |
| Respondent 16 | D     | D     | D     | D     | S     | S     | S     | S     | S     | S      | S      | D      |
| Respondent 17 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 18 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 19 | S     | D     | S     | D     | D     | S     | S     | D     | D     | S      | S      | D      |
| Respondent 20 | D     | D     | D     | D     | D     | D     | S     | S     | D     | D      | D      | D      |
| Respondent 21 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 22 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 23 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 24 | D     | D     | D     | D     | S     | D     | S     | D     | D     | D      | S      | S      |
| Respondent 25 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 26 | D     | D     | D     | D     | D     | D     | D     | D     | D     | D      | D      | D      |
| Respondent 27 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 28 | D     | D     | D     | D     | S     | D     | S     | D     | S     | D      | D      | S      |
| Respondent 29 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |
| Respondent 30 | S     | S     | S     | S     | S     | S     | S     | S     | S     | S      | S      | S      |

DPM = DELPHI PANEL MEMBER

TABLE 5.24: DESCRIPTIVE RESULTS OF INTERRATER AGREEMENT TESTS ON THE MEASURING INSTRUMENT

| Share  | Response - C (Correct) | Response - I (Incorrect) | Total Responses |
|--------|------------------------|--------------------------|-----------------|
| DPM 1  | 100.0%                 | 0.0%                     | 70              |
| DPM 2  | 85.7%                  | 14.3%                    | 70              |
| DPM 3  | 100.0%                 | 0.0%                     | 70              |
| DPM 4  | 100.0%                 | 0.0%                     | 70              |
| DPM 5  | 91.4%                  | 8.6%                     | 70              |
| DPM 6  | 68.6%                  | 31.4%                    | 70              |
| DPM 7  | 94.3%                  | 5.7%                     | 70              |
| DPM 8  | 94.3%                  | 5.7%                     | 70              |
| DPM 9  | 94.3%                  | 5.7%                     | 70              |
| DPM 10 | 88.6%                  | 11.4%                    | 70              |
| DPM 11 | 100.0%                 | 0.0%                     | 70              |
| DPM 12 | 100.0%                 | 0.0%                     | 70              |

DPM = DELPHI PANEL MEMBER

TABLE 5.3: RESULTS OF ANALYSIS OF THE PRE-TESTED SDS QUESTIONNAIRE (N = 30)

|                               |             | PN                     |                             |                      |                    |                      |                          |       |         | OM                     |                             |                      |                    |                      |                          |       |         | OVERALL TOTALS |
|-------------------------------|-------------|------------------------|-----------------------------|----------------------|--------------------|----------------------|--------------------------|-------|---------|------------------------|-----------------------------|----------------------|--------------------|----------------------|--------------------------|-------|---------|----------------|
|                               |             | Evaluation-Description | Control-Problem Orientation | Strategy-Spontaneity | Neutrality-Empathy | Superiority-Equality | Certainty-Provisionalism | Total | General | Evaluation-Description | Control-Problem Orientation | Strategy-Spontaneity | Neutrality-Empathy | Superiority-Equality | Certainty-Provisionalism | Total | General |                |
| Total number of Questions →   |             | 5                      | 6                           | 6                    | 5                  | 6                    | 6                        | 34    | 1       | 5                      | 6                           | 6                    | 5                  | 6                    | 6                        | 34    | 1       | 70             |
| Respondent 1                  | Responses   | 4                      | 6                           | 6                    | 4                  | 4                    | 6                        | 30    | 1       | 4                      | 5                           | 5                    | 4                  | 5                    | 4                        | 27    | 1       | 59             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 2                  | Responses   | 5                      | 6                           | 6                    | 5                  | 6                    | 6                        | 34    | 1       | 5                      | 6                           | 6                    | 5                  | 6                    | 6                        | 34    | 1       | 70             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 3                  | Responses   | 5                      | 6                           | 5                    | 3                  | 5                    | 6                        | 30    | 1       | 5                      | 4                           | 5                    | 4                  | 4                    | 5                        | 27    | 1       | 59             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 4                  | Responses   | 3                      | 3                           | 4                    | 4                  | 4                    | 1                        | 19    | 1       | 4                      | 3                           | 4                    | 4                  | 3                    | 4                        | 22    | 1       | 43             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | D                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 5                  | Responses   | 4                      | 5                           | 6                    | 4                  | 5                    | 6                        | 30    | 1       | 4                      | 3                           | 5                    | 3                  | 4                    | 4                        | 23    | 1       | 55             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 6                  | Responses   | 3                      | 5                           | 4                    | 4                  | 1                    | 2                        | 19    | 1       | 3                      | 4                           | 2                    | 3                  | 2                    | 0                        | 14    | 0       | 34             |
|                               | Orientation | S                      | S                           | S                    | S                  | D                    | D                        | S     | S       | S                      | S                           | D                    | S                  | D                    | D                        | D     | D       | S              |
| Respondent 7                  | Responses   | 0                      | 3                           | 0                    | 1                  | 4                    | 5                        | 13    | 0       | 3                      | 2                           | 0                    | 1                  | 5                    | 4                        | 15    | 0       | 28             |
|                               | Orientation | D                      | S                           | D                    | D                  | S                    | S                        | D     | D       | S                      | D                           | D                    | D                  | S                    | S                        | D     | D       | D              |
| Respondent 8                  | Responses   | 4                      | 5                           | 5                    | 5                  | 5                    | 4                        | 28    | 1       | 3                      | 6                           | 6                    | 4                  | 6                    | 4                        | 29    | 1       | 59             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 9                  | Responses   | 5                      | 6                           | 5                    | 4                  | 2                    | 5                        | 27    | 1       | 3                      | 4                           | 2                    | 1                  | 3                    | 1                        | 14    | 0       | 42             |
|                               | Orientation | S                      | S                           | S                    | S                  | D                    | S                        | S     | S       | S                      | S                           | D                    | D                  | S                    | D                        | D     | D       | S              |
| Respondent 10                 | Responses   | 3                      | 5                           | 1                    | 1                  | 4                    | 4                        | 18    | 1       | 4                      | 3                           | 0                    | 2                  | 3                    | 1                        | 13    | 0       | 32             |
|                               | Orientation | S                      | S                           | D                    | D                  | S                    | S                        | S     | S       | S                      | S                           | D                    | D                  | S                    | D                        | D     | D       | D              |
| Respondent 11                 | Responses   | 5                      | 5                           | 4                    | 4                  | 5                    | 6                        | 29    | 1       | 3                      | 5                           | 4                    | 5                  | 2                    | 4                        | 23    | 1       | 54             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | D                    | S                        | S     | S       | S              |
| Respondent 12                 | Responses   | 2                      | 4                           | 1                    | 4                  | 6                    | 6                        | 23    | 1       | 2                      | 1                           | 1                    | 4                  | 6                    | 5                        | 19    | 1       | 44             |
|                               | Orientation | D                      | S                           | D                    | S                  | S                    | S                        | S     | S       | D                      | D                           | D                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 13                 | Responses   | 5                      | 6                           | 4                    | 1                  | 3                    | 2                        | 21    | 1       | 4                      | 4                           | 4                    | 2                  | 1                    | 0                        | 15    | 0       | 37             |
|                               | Orientation | S                      | S                           | S                    | D                  | S                    | D                        | S     | S       | S                      | S                           | S                    | D                  | D                    | D                        | D     | D       | S              |
| Respondent 14                 | Responses   | 2                      | 4                           | 6                    | 3                  | 5                    | 3                        | 23    | 1       | 4                      | 5                           | 4                    | 5                  | 2                    | 3                        | 23    | 1       | 48             |
|                               | Orientation | D                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | D                    | S                        | S     | S       | S              |
| Respondent 15                 | Responses   | 5                      | 5                           | 6                    | 5                  | 3                    | 5                        | 29    | 1       | 5                      | 6                           | 4                    | 2                  | 3                    | 1                        | 21    | 1       | 52             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | D                  | S                    | D                        | S     | S       | S              |
| Respondent 16                 | Responses   | 4                      | 3                           | 3                    | 2                  | 3                    | 6                        | 21    | 1       | 1                      | 3                           | 0                    | 2                  | 6                    | 6                        | 18    | 1       | 41             |
|                               | Orientation | S                      | S                           | S                    | D                  | D                    | S                        | S     | S       | D                      | S                           | D                    | D                  | S                    | S                        | S     | S       | S              |
| Respondent 17                 | Responses   | 2                      | 3                           | 6                    | 5                  | 5                    | 4                        | 25    | 1       | 4                      | 5                           | 6                    | 4                  | 5                    | 4                        | 28    | 1       | 55             |
|                               | Orientation | D                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 18                 | Responses   | 3                      | 4                           | 4                    | 2                  | 1                    | 3                        | 17    | 1       | 1                      | 3                           | 1                    | 0                  | 3                    | 0                        | 8     | 0       | 26             |
|                               | Orientation | S                      | S                           | S                    | D                  | D                    | S                        | S     | S       | D                      | S                           | D                    | D                  | S                    | D                        | D     | D       | D              |
| Respondent 19                 | Responses   | 5                      | 6                           | 5                    | 5                  | 5                    | 6                        | 32    | 1       | 4                      | 6                           | 6                    | 5                  | 6                    | 6                        | 33    | 1       | 67             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 20                 | Responses   | 3                      | 5                           | 3                    | 4                  | 5                    | 3                        | 23    | 1       | 0                      | 3                           | 3                    | 2                  | 3                    | 2                        | 13    | 0       | 37             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | D                      | S                           | S                    | D                  | S                    | D                        | D     | D       | S              |
| Respondent 21                 | Responses   | 1                      | 3                           | 1                    | 2                  | 1                    | 1                        | 9     | 0       | 2                      | 3                           | 3                    | 0                  | 1                    | 0                        | 9     | 0       | 18             |
|                               | Orientation | D                      | S                           | D                    | D                  | D                    | D                        | D     | D       | D                      | S                           | S                    | D                  | D                    | D                        | D     | D       | D              |
| Respondent 22                 | Responses   | 3                      | 4                           | 4                    | 4                  | 5                    | 6                        | 26    | 1       | 3                      | 3                           | 4                    | 4                  | 5                    | 5                        | 24    | 1       | 52             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 23                 | Responses   | 4                      | 4                           | 1                    | 1                  | 0                    | 2                        | 12    | 0       | 2                      | 1                           | 1                    | 1                  | 1                    | 3                        | 9     | 0       | 21             |
|                               | Orientation | S                      | S                           | D                    | D                  | D                    | D                        | D     | D       | D                      | D                           | D                    | D                  | D                    | S                        | D     | D       | D              |
| Respondent 24                 | Responses   | 3                      | 5                           | 4                    | 4                  | 4                    | 4                        | 24    | 1       | 4                      | 2                           | 4                    | 3                  | 4                    | 3                        | 20    | 1       | 46             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | D                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 25                 | Responses   | 4                      | 6                           | 6                    | 5                  | 5                    | 6                        | 32    | 1       | 5                      | 6                           | 6                    | 5                  | 6                    | 5                        | 33    | 1       | 67             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 26                 | Responses   | 4                      | 5                           | 4                    | 2                  | 3                    | 2                        | 20    | 1       | 4                      | 5                           | 2                    | 1                  | 2                    | 2                        | 16    | 0       | 37             |
|                               | Orientation | S                      | S                           | S                    | D                  | S                    | D                        | S     | S       | S                      | S                           | D                    | D                  | D                    | D                        | D     | D       | S              |
| Respondent 27                 | Responses   | 3                      | 5                           | 2                    | 4                  | 5                    | 5                        | 24    | 1       | 4                      | 4                           | 0                    | 4                  | 5                    | 4                        | 21    | 1       | 47             |
|                               | Orientation | S                      | S                           | D                    | S                  | S                    | S                        | S     | S       | S                      | S                           | D                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 28                 | Responses   | 5                      | 5                           | 3                    | 4                  | 5                    | 4                        | 26    | 1       | 3                      | 4                           | 4                    | 5                  | 4                    | 2                        | 22    | 1       | 50             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | D                        | S     | S       | S              |
| Respondent 29                 | Responses   | 5                      | 6                           | 6                    | 4                  | 5                    | 6                        | 32    | 1       | 4                      | 6                           | 5                    | 3                  | 3                    | 4                        | 25    | 1       | 59             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Respondent 30                 | Responses   | 4                      | 6                           | 6                    | 4                  | 3                    | 6                        | 29    | 1       | 5                      | 5                           | 5                    | 3                  | 6                    | 5                        | 29    | 1       | 60             |
|                               | Orientation | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S                      | S                           | S                    | S                  | S                    | S                        | S     | S       | S              |
| Total of Supportive responses |             | 108                    | 144                         | 121                  | 104                | 117                  | 131                      | 725   | 27      | 102                    | 120                         | 102                  | 91                 | 115                  | 97                       | 627   | 20      | 1399           |
| Totals of All responses (n)   |             | 150                    | 180                         | 180                  | 150                | 180                  | 180                      | 1020  | 30      | 150                    | 180                         | 180                  | 150                | 180                  | 180                      | 1020  | 30      | 2100           |

**TABLE 5.20: RESULTS OF THE INTERRATER AGREEMENT TESTS ON THE RESPONDENTS**

| Rater  | Agreement with | Test          | Number of Subjects | Number of raters | % agreement | kappa ( $\kappa$ ) | z     | p-value  |
|--------|----------------|---------------|--------------------|------------------|-------------|--------------------|-------|----------|
| DPM 1  | DPM 2          | Cohen's kappa | 30                 | 2                | 96.7        | 0.932              | 5.11  | 3.15e-07 |
|        | DPM 3          | Cohen's kappa | 30                 | 2                | 100         | 1                  | 5.48  | 4.32e-08 |
|        | DPM 4          | Cohen's kappa | 30                 | 2                | 96.7        | 0.932              | 5.11  | 3.15e-07 |
|        | DPM 5          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|        | DPM 6          | Cohen's kappa | 30                 | 2                | 96.7        | 0.933              | 5.12  | 3.05e-07 |
|        | DPM 7          | Cohen's kappa | 30                 | 2                | 70          | 0.435              | 2.89  | 0.00387  |
|        | DPM 8          | Cohen's kappa | 30                 | 2                | 83.3        | 0.67               | 3.74  | 0.000183 |
|        | DPM 9          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|        | DPM 10         | Cohen's kappa | 30                 | 2                | 93.3        | 0.867              | 4.79  | 1.67e-06 |
|        | DPM 11         | Cohen's kappa | 30                 | 2                | 86.7        | 0.738              | 4.19  | 2.81e-05 |
|        | DPM 12         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|        | DPM 2          | DPM 1         | Cohen's kappa      | 30               | 2           | 96.7               | 0.932 | 5.11     |
| DPM 3  |                | Cohen's kappa | 30                 | 2                | 96.7        | 0.932              | 5.11  | 3.15e-07 |
| DPM 4  |                | Cohen's kappa | 30                 | 2                | 100         | 1                  | 5.48  | 4.32e-08 |
| DPM 5  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 6  |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.865              | 4.78  | 1.74e-06 |
| DPM 7  |                | Cohen's kappa | 30                 | 2                | 66.7        | 0.39               | 2.7   | 0.007    |
| DPM 8  |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.737              | 4.18  | 2.87e-05 |
| DPM 9  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 10 |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 11 |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.675              | 3.91  | 9.2e-05  |
| DPM 12 |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 3  |                | DPM 1         | Cohen's kappa      | 30               | 2           | 100                | 1     | 5.48     |
|        | DPM 2          | Cohen's kappa | 30                 | 2                | 96.7        | 0.932              | 5.11  | 3.15e-07 |
|        | DPM 4          | Cohen's kappa | 30                 | 2                | 96.7        | 0.932              | 5.11  | 3.15e-07 |
|        | DPM 5          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|        | DPM 6          | Cohen's kappa | 30                 | 2                | 96.7        | 0.933              | 5.12  | 3.05e-07 |
|        | DPM 7          | Cohen's kappa | 30                 | 2                | 70          | 0.435              | 2.89  | 0.00387  |
|        | DPM 8          | Cohen's kappa | 30                 | 2                | 83.3        | 0.67               | 3.74  | 0.000183 |
|        | DPM 9          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|        | DPM 10         | Cohen's kappa | 30                 | 2                | 93.3        | 0.867              | 4.79  | 1.67e-06 |
|        | DPM 11         | Cohen's kappa | 30                 | 2                | 86.7        | 0.738              | 4.19  | 2.81e-05 |
|        | DPM 12         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|        | DPM 4          | DPM 1         | Cohen's kappa      | 30               | 2           | 96.7               | 0.932 | 5.11     |
| DPM 2  |                | Cohen's kappa | 30                 | 2                | 100         | 1                  | 5.48  | 4.32e-08 |
| DPM 3  |                | Cohen's kappa | 30                 | 2                | 96.7        | 0.932              | 5.11  | 3.15e-07 |
| DPM 5  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 6  |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.865              | 4.78  | 1.74e-06 |
| DPM 7  |                | Cohen's kappa | 30                 | 2                | 66.7        | 0.39               | 2.7   | 0.007    |
| DPM 8  |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.737              | 4.18  | 2.87e-05 |
| DPM 9  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 10 |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 11 |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.675              | 3.91  | 9.2e-05  |
| DPM 12 |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 5  |                | DPM 1         | Cohen's kappa      | 30               | 2           | 86.7               | 0.733 | 4.05     |
|        | DPM 2          | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
|        | DPM 3          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|        | DPM 4          | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
|        | DPM 6          | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.39  | 1.13e-05 |
|        | DPM 7          | Cohen's kappa | 30                 | 2                | 76.7        | 0.533              | 3.3   | 0.000957 |
|        | DPM 8          | Cohen's kappa | 30                 | 2                | 83.3        | 0.667              | 3.66  | 0.000253 |
|        | DPM 9          | Cohen's kappa | 30                 | 2                | 93.3        | 0.867              | 4.75  | 2.07e-06 |
|        | DPM 10         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.02  | 5.9e-05  |
|        | DPM 11         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|        | DPM 12         | Cohen's kappa | 30                 | 2                | 93.3        | 0.867              | 4.75  | 2.07e-06 |
|        | DPM 6          | DPM 1         | Cohen's kappa      | 30               | 2           | 96.7               | 0.933 | 5.12     |
| DPM 2  |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.865              | 4.78  | 1.74e-06 |
| DPM 3  |                | Cohen's kappa | 30                 | 2                | 96.7        | 0.933              | 5.12  | 3.05e-07 |
| DPM 4  |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.865              | 4.78  | 1.74e-06 |
| DPM 5  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.39  | 1.13e-05 |
| DPM 7  |                | Cohen's kappa | 30                 | 2                | 73.3        | 0.483              | 3.09  | 0.002    |
| DPM 8  |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.735              | 4.06  | 4.93e-05 |
| DPM 9  |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.39  | 1.13e-05 |
| DPM 10 |                | Cohen's kappa | 30                 | 2                | 96.7        | 0.932              | 5.12  | 3.05e-07 |
| DPM 11 |                | Cohen's kappa | 30                 | 2                | 90          | 0.802              | 4.48  | 7.45e-06 |
| DPM 12 |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667              | 3.66  | 0.000253 |

e = to the power indicated next to each p-value

DPM = DELPHI PANEL MEMBER

TABLE 5.20: Continued

| Rater       | Agreement with | Test          | Number of Subjects | Number of raters | % agreement | kappa ( $\kappa$ ) | z     | p-value  |
|-------------|----------------|---------------|--------------------|------------------|-------------|--------------------|-------|----------|
| DPM 7       | DPM 1          | Cohen's kappa | 30                 | 2                | 70          | 0.435              | 2.89  | 0.00387  |
|             | DPM 2          | Cohen's kappa | 30                 | 2                | 66.7        | 0.39               | 2.7   | 0.007    |
|             | DPM 3          | Cohen's kappa | 30                 | 2                | 70          | 0.435              | 2.89  | 0.00387  |
|             | DPM 4          | Cohen's kappa | 30                 | 2                | 66.7        | 0.39               | 2.7   | 0.007    |
|             | DPM 5          | Cohen's kappa | 30                 | 2                | 76.7        | 0.533              | 3.3   | 0.000957 |
|             | DPM 6          | Cohen's kappa | 30                 | 2                | 73.3        | 0.483              | 3.09  | 0.002    |
|             | DPM 8          | Cohen's kappa | 30                 | 2                | 80          | 0.587              | 3.53  | 0.000414 |
|             | DPM 9          | Cohen's kappa | 30                 | 2                | 76.7        | 0.533              | 3.3   | 0.000957 |
|             | DPM 10         | Cohen's kappa | 30                 | 2                | 76.7        | 0.533              | 3.3   | 0.000957 |
|             | DPM 11         | Cohen's kappa | 30                 | 2                | 83.3        | 0.645              | 3.78  | 0.000159 |
|             | DPM 12         | Cohen's kappa | 30                 | 2                | 76.7        | 0.533              | 3.3   | 0.000957 |
|             | DPM 8          | DPM 1         | Cohen's kappa      | 30               | 2           | 83.3               | 0.67  | 3.74     |
| DPM 2       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.737              | 4.18  | 2.87e-05 |
| DPM 3       |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.67               | 3.74  | 0.000183 |
| DPM 4       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.737              | 4.18  | 2.87e-05 |
| DPM 5       |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667              | 3.66  | 0.000253 |
| DPM 6       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.735              | 4.06  | 5.93e-05 |
| DPM 7       |                | Cohen's kappa | 30                 | 2                | 80          | 0.587              | 3.53  | 0.000414 |
| DPM 9       |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667              | 3.66  | 0.000253 |
| DPM 10      |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667              | 3.66  | 0.000253 |
| DPM 11      |                | Cohen's kappa | 30                 | 2                | 76.7        | 0.529              | 2.9   | 0.00367  |
| DPM 12      |                | Cohen's kappa | 30                 | 2                | 76.7        | 0.533              | 2.93  | 0.00341  |
| DPM 9       |                | DPM 1         | Cohen's kappa      | 30               | 2           | 86.7               | 0.733 | 4.05     |
|             | DPM 2          | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
|             | DPM 3          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|             | DPM 4          | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
|             | DPM 5          | Cohen's kappa | 30                 | 2                | 93.3        | 0.867              | 4.75  | 2.07e-06 |
|             | DPM 6          | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.39  | 1.13e-05 |
|             | DPM 7          | Cohen's kappa | 30                 | 2                | 76.7        | 0.533              | 3.3   | 0.000957 |
|             | DPM 8          | Cohen's kappa | 30                 | 2                | 83.3        | 0.667              | 3.66  | 0.000253 |
|             | DPM 10         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.02  | 5.9e-05  |
|             | DPM 11         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|             | DPM 12         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|             | DPM 10         | DPM 1         | Cohen's kappa      | 30               | 2           | 93.3               | 0.867 | 4.79     |
| DPM 2       |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 3       |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.867              | 4.79  | 1.67e-06 |
| DPM 4       |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 5       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.02  | 5.9e-05  |
| DPM 6       |                | Cohen's kappa | 30                 | 2                | 96.7        | 0.933              | 5.12  | 3e-07    |
| DPM 7       |                | Cohen's kappa | 30                 | 2                | 76.7        | 0.533              | 3.3   | 0.000957 |
| DPM 8       |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667              | 3.66  | 0.000253 |
| DPM 9       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.02  | 5.9e-05  |
| DPM 11      |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
| DPM 12      |                | Cohen's kappa | 30                 | 2                | 80          | 0.6                | 3.29  | 0.00102  |
| DPM 11      |                | DPM 1         | Cohen's kappa      | 30               | 2           | 86.7               | 0.738 | 4.19     |
|             | DPM 2          | Cohen's kappa | 30                 | 2                | 83.3        | 0.675              | 3.91  | 9.2e-05  |
|             | DPM 3          | Cohen's kappa | 30                 | 2                | 86.7        | 0.738              | 4.19  | 5.81e-05 |
|             | DPM 4          | Cohen's kappa | 30                 | 2                | 83.3        | 0.675              | 3.91  | 9.2e-05  |
|             | DPM 5          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|             | DPM 6          | Cohen's kappa | 30                 | 2                | 90          | 0.802              | 4.48  | 7.45e-06 |
|             | DPM 7          | Cohen's kappa | 30                 | 2                | 83.3        | 0.645              | 3.78  | 0.000159 |
|             | DPM 8          | Cohen's kappa | 30                 | 2                | 76.7        | 0.529              | 2.9   | 0.00367  |
|             | DPM 9          | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|             | DPM 10         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|             | DPM 12         | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
|             | DPM 12         | DPM 1         | Cohen's kappa      | 30               | 2           | 86.7               | 0.733 | 4.05     |
| DPM 2       |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 3       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
| DPM 4       |                | Cohen's kappa | 30                 | 2                | 90          | 0.8                | 4.47  | 7.74e-06 |
| DPM 5       |                | Cohen's kappa | 30                 | 2                | 93.3        | 0.867              | 4.75  | 2.07e-06 |
| DPM 6       |                | Cohen's kappa | 30                 | 2                | 83.3        | 0.667              | 3.66  | 0.000253 |
| DPM 7       |                | Cohen's kappa | 30                 | 2                | 76.6        | 0.533              | 3.3   | 0.000957 |
| DPM 8       |                | Cohen's kappa | 30                 | 2                | 76.6        | 0.533              | 2.93  | 0.00341  |
| DPM 9       |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.02  | 5.9e-05  |
| DPM 10      |                | Cohen's kappa | 30                 | 2                | 80          | 0.6                | 3.29  | 0.00102  |
| DPM 11      |                | Cohen's kappa | 30                 | 2                | 86.7        | 0.733              | 4.05  | 5.06e-05 |
| All 12 DPMs |                |               | Fleiss' kappa      | 30               | 12          | -                  | 0.728 | 32.4     |

e = to the power indicated next to each p-value

DPM = DELPHI PANEL MEMBER

TABLE 5.21: RATER (DELPHI PANEL MEMBER) FEEDBACK ON THE DRAFT MEASURING INSTRUMENT

| DPMs        | DPM 1 | DPM 2 | DPM 3 | DPM 4 | DPM 5 | DPM 6 | DPM 7 | DPM 8 | DPM 9 | DPM 10 | DPM 11 | DPM 12 |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| Question 1  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 2  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 3  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 4  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 5  | C     | C     | C     | C     | C     | I     | C     | C     | C     | C      | C      | C      |
| Question 6  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 7  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 8  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 9  | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 10 | C     | C     | C     | C     | C     | I     | C     | C     | C     | C      | C      | C      |
| Question 11 | C     | C     | C     | C     | C     | I     | C     | C     | I     | C      | C      | C      |
| Question 12 | C     | C     | C     | C     | C     | C     | C     | I     | C     | C      | C      | C      |
| Question 13 | C     | C     | C     | C     | C     | I     | C     | C     | I     | C      | C      | C      |
| Question 14 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 15 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 16 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 17 | C     | C     | C     | C     | C     | I     | C     | C     | I     | C      | C      | C      |
| Question 18 | C     | C     | C     | C     | C     | C     | C     | I     | C     | C      | C      | C      |
| Question 19 | C     | C     | C     | C     | C     | I     | C     | C     | I     | C      | C      | C      |
| Question 20 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 21 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 22 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 23 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 24 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 25 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 26 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 27 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 28 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 29 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 30 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 31 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 32 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 33 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 34 | C     | C     | C     | C     | I     | I     | C     | C     | C     | C      | C      | C      |
| Question 35 | C     | C     | C     | C     | C     | I     | C     | C     | C     | I      | C      | C      |
| Question 36 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 37 | C     | I     | C     | C     | C     | I     | C     | C     | C     | C      | C      | C      |
| Question 38 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 39 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 40 | C     | C     | C     | C     | C     | I     | C     | C     | C     | I      | C      | C      |
| Question 41 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 42 | C     | I     | C     | C     | C     | I     | C     | C     | C     | C      | C      | C      |
| Question 43 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 44 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 45 | C     | C     | C     | C     | C     | I     | C     | C     | C     | I      | C      | C      |
| Question 46 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 47 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 48 | C     | C     | C     | C     | C     | C     | C     | I     | C     | I      | C      | C      |
| Question 49 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 50 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 51 | C     | C     | C     | C     | C     | I     | C     | C     | C     | I      | C      | C      |
| Question 52 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 53 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 54 | C     | C     | C     | C     | C     | C     | C     | I     | C     | I      | C      | C      |
| Question 55 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 56 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 57 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 58 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 59 | C     | C     | C     | C     | C     | I     | I     | C     | C     | C      | C      | C      |
| Question 60 | C     | C     | C     | C     | C     | I     | I     | C     | C     | I      | C      | C      |
| Question 61 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 62 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 63 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 64 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 65 | C     | C     | C     | C     | C     | I     | I     | C     | C     | C      | C      | C      |
| Question 66 | C     | C     | C     | C     | C     | I     | I     | C     | C     | I      | C      | C      |
| Question 67 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 68 | C     | I     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 69 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |
| Question 70 | C     | C     | C     | C     | C     | C     | C     | C     | C     | C      | C      | C      |

DPM = DELPHI PANEL MEMBER

**TABLE 5.22: CONSOLIDATION OF RATER FEEDBACK**

| Rating      | Correct | Incorrect | DPM - Expertise | Reason for Incorrect rating/<br>Problem with item |
|-------------|---------|-----------|-----------------|---|
| Question 1  | 12      | 0         | -               | -   |
| Question 2  | 12      | 0         | -               | -   |
| Question 3  | 12      | 0         | -               | -   |
| Question 4  | 12      | 0         | -               | -   |
| Question 5  | 11      | 1         | NSE             | Clarity   |
| Question 6  | 12      | 0         | -               | -   |
| Question 7  | 12      | 0         | -               | -   |
| Question 8  | 12      | 0         | -               | -   |
| Question 9  | 12      | 0         | -               | -   |
| Question 10 | 11      | 1         | NSE             | Clarity   |
| Question 11 | 10      | 2         | NSE/ CSE        | Accuracy  |
| Question 12 | 11      | 1         | NSE             | Suitability                                       |
| Question 13 | 10      | 2         | NSE/BSE         | Clarity   |
| Question 14 | 12      | 0         | -               | -   |
| Question 15 | 12      | 0         | -               | -   |
| Question 16 | 12      | 0         | -               | -   |
| Question 17 | 10      | 2         | NSE/ CSE        | Accuracy  |
| Question 18 | 11      | 1         | NSE             | Suitability                                       |
| Question 19 | 10      | 2         | NSE/BSE         | Clarity   |
| Question 20 | 12      | 0         | -               | -   |
| Question 21 | 12      | 0         | -               | -   |
| Question 22 | 12      | 0         | -               | -   |
| Question 23 | 12      | 0         | -               | -   |
| Question 24 | 10      | 2         | NSE/ NSE        | Accuracy  |
| Question 25 | 10      | 2         | NSE/ NSE        | Accuracy  |
| Question 26 | 12      | 0         | -               | -   |
| Question 27 | 12      | 0         | -               | -   |
| Question 28 | 10      | 2         | NSE/ NSE        | Clarity   |
| Question 29 | 12      | 0         | -               | -   |
| Question 30 | 10      | 2         | NSE/ NSE        | Accuracy  |
| Question 31 | 10      | 2         | NSE/ NSE        | Accuracy  |
| Question 32 | 12      | 0         | -               | -   |
| Question 33 | 12      | 0         | -               | -   |
| Question 34 | 10      | 2         | NSE/ NSE        | Clarity   |
| Question 35 | 10      | 2         | CSE/ NSE        | Clarity   |
| Question 36 | 11      | 1         | BSE             | Suitability                                       |
| Question 37 | 10      | 2         | BSE/NSE         | Clarity   |
| Question 38 | 12      | 0         | -               | -   |
| Question 39 | 12      | 0         | -               | -   |
| Question 40 | 10      | 2         | CSE/ NSE        | Clarity   |
| Question 41 | 11      | 1         | BSE             | Suitability                                       |
| Question 42 | 10      | 2         | BSE/NSE         | Clarity   |
| Question 43 | 12      | 0         | -               | -   |
| Question 44 | 12      | 0         | -               | -   |
| Question 45 | 12      | 0         | -               | -   |
| Question 46 | 11      | 1         | BSE             | Relevancy   |
| Question 47 | 12      | 0         | -               | -   |
| Question 48 | 10      | 2         | CSE/ NSE        | Clarity   |
| Question 49 | 12      | 0         | -               | -   |
| Question 50 | 12      | 0         | -               | -   |
| Question 51 | 12      | 0         | -               | -   |
| Question 52 | 11      | 1         | BSE             | Relevancy   |
| Question 53 | 12      | 0         | -               | -   |
| Question 54 | 10      | 2         | CSE/ NSE        | Clarity   |
| Question 55 | 12      | 0         | -               | -   |
| Question 56 | 12      | 0         | -               | -   |
| Question 57 | 11      | 1         | BSE             | Accuracy  |
| Question 58 | 12      | 0         | -               | -   |
| Question 59 | 10      | 2         | NSE/ NSE        | Clarity   |
| Question 60 | 9       | 3         | CSE/ NSE/ NSE   | Clarity   |
| Question 61 | 12      | 0         | -               | -   |
| Question 62 | 11      | 1         | BSE             | Relevancy   |
| Question 63 | 11      | 1         | BSE             | Accuracy  |
| Question 64 | 12      | 0         | -               | -   |
| Question 65 | 10      | 2         | NSE/ NSE        | Clarity   |
| Question 66 | 9       | 3         | CSE/ NSE/ NSE   | Clarity   |
| Question 67 | 12      | 0         | -               | -   |
| Question 68 | 11      | 1         | BSE             | Relevancy   |
| Question 69 | 12      | 0         | -               | -   |
| Question 70 | 12      | 0         | -               | -   |

NSE = NURSING SCIENCE EXPERT  
 CSE = COMMUNICATION SCIENCE EXPERT  
 BSE = BEHAVIOURAL SCIENCE EXPERT

TABLE 5.23: RESULTS OF THE INTERRATER AGREEMENT TESTS ON THE DRAFT MEASURING INSTRUMENT

| Rater | Agreement with | Test          | Number of Subjects | Number of raters | % agreement | kappa ( $\kappa$ ) | z      | p-value  |
|-------|----------------|---------------|--------------------|------------------|-------------|--------------------|--------|----------|
| DPM 1 | DPM 2          | Cohen's kappa | 70                 | 2                | 85.7        | 0                  | 0      | 1        |
|       | DPM 3          | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
|       | DPM 4          | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
|       | DPM 5          | Cohen's kappa | 70                 | 2                | 91.4        | 0                  | NaN    | NaN      |
|       | DPM 6          | Cohen's kappa | 70                 | 2                | 68.6        | 0                  | NaN    | NaN      |
|       | DPM 7          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN      |
|       | DPM 8          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN      |
|       | DPM 9          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN      |
|       | DPM 10         | Cohen's kappa | 70                 | 2                | 88.6        | 0                  | NaN    | NaN      |
|       | DPM 11         | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
|       | DPM 12         | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
| DPM 2 | DPM 1          | Cohen's kappa | 70                 | 2                | 85.7        | 0                  | 0      | 1        |
|       | DPM 3          | Cohen's kappa | 70                 | 2                | 85.7        | 0                  | 0      | 1        |
|       | DPM 4          | Cohen's kappa | 70                 | 2                | 85.7        | 0                  | 0      | 1        |
|       | DPM 5          | Cohen's kappa | 70                 | 2                | 77.1        | 0                  | 0      | 1        |
|       | DPM 6          | Cohen's kappa | 70                 | 2                | 60          | -0.12              | -1.05  | 0.296    |
|       | DPM 7          | Cohen's kappa | 70                 | 2                | 80          | -0.0889            | -0.841 | 0.4      |
|       | DPM 8          | Cohen's kappa | 70                 | 2                | 80          | -0.0889            | -0.841 | 0.4      |
|       | DPM 9          | Cohen's kappa | 70                 | 2                | 80          | -0.0889            | -0.841 | 0.4      |
|       | DPM 10         | Cohen's kappa | 70                 | 2                | 74.3        | -0.145             | -0.123 | 0.22     |
|       | DPM 11         | Cohen's kappa | 70                 | 2                | 85.7        | 0                  | 0      | 1        |
|       | DPM 12         | Cohen's kappa | 70                 | 2                | 85.7        | 0                  | 0      | 1        |
| DPM 3 | DPM 1          | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
|       | DPM 2          | Cohen's kappa | 70                 | 2                | 85.7        | 0                  | 0      | 1        |
|       | DPM 4          | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
|       | DPM 5          | Cohen's kappa | 70                 | 2                | 91.4        | 0                  | NaN    | NaN      |
|       | DPM 6          | Cohen's kappa | 70                 | 2                | 68.6        | 0                  | NaN    | NaN      |
|       | DPM 7          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN      |
|       | DPM 8          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN      |
|       | DPM 9          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN      |
|       | DPM 10         | Cohen's kappa | 70                 | 2                | 88.6        | 0                  | NaN    | NaN      |
|       | DPM 11         | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
|       | DPM 12         | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
| DPM 4 | DPM 1          | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
|       | DPM 2          | Cohen's kappa | 70                 | 2                | 85.7        | 0                  | 0      | 1        |
|       | DPM 3          | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
|       | DPM 5          | Cohen's kappa | 70                 | 2                | 91.4        | NaN                | NaN    | NaN      |
|       | DPM 6          | Cohen's kappa | 70                 | 2                | 68.6        | 0                  | NaN    | NaN      |
|       | DPM 7          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN      |
|       | DPM 8          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN      |
|       | DPM 9          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN      |
|       | DPM 10         | Cohen's kappa | 70                 | 2                | 88.6        | 0                  | NaN    | NaN      |
|       | DPM 11         | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
|       | DPM 12         | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN      |
| DPM 5 | DPM 1          | Cohen's kappa | 70                 | 2                | 91.4        | 0                  | -      | -        |
|       | DPM 2          | Cohen's kappa | 70                 | 2                | 77.1        | -0.12              | -1.05  | 0.296    |
|       | DPM 3          | Cohen's kappa | 70                 | 2                | 91.4        | 0                  | NaN    | NaN      |
|       | DPM 4          | Cohen's kappa | 70                 | 2                | 91.4        | 0                  | NaN    | NaN      |
|       | DPM 6          | Cohen's kappa | 70                 | 2                | 77.1        | 0.34               | 3.78   | 0.000154 |
|       | DPM 7          | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736            | -0.631 | 0.528    |
|       | DPM 8          | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736            | -0.631 | 0.528    |
|       | DPM 9          | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736            | -0.631 | 0.528    |
|       | DPM 10         | Cohen's kappa | 70                 | 2                | 80          | -0.109             | -0.92  | 0.357    |
|       | DPM 11         | Cohen's kappa | 70                 | 2                | 91.4        | 0                  | NaN    | NaN      |
|       | DPM 12         | Cohen's kappa | 70                 | 2                | 91.4        | 0                  | NaN    | NaN      |
| DPM 6 | DPM 1          | Cohen's kappa | 70                 | 2                | 68.6        | 0                  | NaN    | NaN      |
|       | DPM 2          | Cohen's kappa | 70                 | 2                | 60          | -0.0889            | -0.841 | 0.4      |
|       | DPM 3          | Cohen's kappa | 70                 | 2                | 68.6        | 0                  | NaN    | NaN      |
|       | DPM 4          | Cohen's kappa | 70                 | 2                | 68.6        | 0                  | NaN    | NaN      |
|       | DPM 5          | Cohen's kappa | 70                 | 2                | 77.1        | 0.34               | 3.78   | 0.000154 |
|       | DPM 7          | Cohen's kappa | 70                 | 2                | 74.3        | 0.234              | 3.04   | 0.00235  |
|       | DPM 8          | Cohen's kappa | 70                 | 2                | 62.9        | -0.107             | -1.39  | 0.163    |
|       | DPM 9          | Cohen's kappa | 70                 | 2                | 74.3        | 0.234              | 3.04   | 0.00235  |
|       | DPM 10         | Cohen's kappa | 70                 | 2                | 74.3        | 0.279              | 2.82   | 0.00479  |
|       | DPM 11         | Cohen's kappa | 70                 | 2                | 68.6        | 0                  | NaN    | NaN      |
|       | DPM 12         | Cohen's kappa | 70                 | 2                | 68.6        | 0                  | NaN    | NaN      |

DPM = DELPHI PANEL MEMBER

TABLE 5.23: Continued

| Rater       | Agreement with | Test          | Number of Subjects | Number of raters | % agreement | kappa ( $\kappa$ ) | z      | p-value |
|-------------|----------------|---------------|--------------------|------------------|-------------|--------------------|--------|---------|
| DPM 7       | DPM 1          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 2          | Cohen's kappa | 70                 | 2                | 80          | -0.0889            | -0.841 | 0.4     |
|             | DPM 3          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 4          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 5          | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736            | -0.631 | 0.528   |
|             | DPM 6          | Cohen's kappa | 70                 | 2                | 74.3        | 0.234              | 3.04   | 0.00235 |
|             | DPM 8          | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606            | -0.507 | 0.612   |
|             | DPM 9          | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606            | -0.507 | 0.612   |
|             | DPM 10         | Cohen's kappa | 70                 | 2                | 88.6        | 0.278              | 2.5    | 0.0125  |
|             | DPM 11         | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 12         | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 8          | DPM 1         | Cohen's kappa      | 70               | 2           | 94.3               | 0      | NaN     |
| DPM 2       |                | Cohen's kappa | 70                 | 2                | 80          | -0.0889            | -0.841 | 0.4     |
| DPM 3       |                | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
| DPM 4       |                | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
| DPM 5       |                | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736            | -0.631 | 0.528   |
| DPM 6       |                | Cohen's kappa | 70                 | 2                | 62.9        | -0.107             | -1.39  | 0.163   |
| DPM 7       |                | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606            | -0.507 | 0.612   |
| DPM 9       |                | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606            | -0.507 | 0.612   |
| DPM 10      |                | Cohen's kappa | 70                 | 2                | 88.6        | 0.278              | 2.5    | 0.0125  |
| DPM 11      |                | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
| DPM 12      |                | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
| DPM 9       |                | DPM 1         | Cohen's kappa      | 70               | 2           | 94.3               | 0      | NaN     |
|             | DPM 2          | Cohen's kappa | 70                 | 2                | 80          | -0.0889            | -0.841 | 0.4     |
|             | DPM 3          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 4          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 5          | Cohen's kappa | 70                 | 2                | 85.7        | -0.0736            | -0.631 | 0.528   |
|             | DPM 6          | Cohen's kappa | 70                 | 2                | 74.3        | 0.234              | 3.04   | 0.00235 |
|             | DPM 7          | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606            | -0.507 | 0.612   |
|             | DPM 8          | Cohen's kappa | 70                 | 2                | 88.6        | -0.0606            | -0.507 | 0.612   |
|             | DPM 10         | Cohen's kappa | 70                 | 2                | 82.9        | -0.0825            | -0.74  | 0.459   |
|             | DPM 11         | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 12         | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 10         | DPM 1         | Cohen's kappa      | 70               | 2           | 88.6               | 0      | NaN     |
| DPM 2       |                | Cohen's kappa | 70                 | 2                | 74.3        | -0.145             | -0.123 | 0.22    |
| DPM 3       |                | Cohen's kappa | 70                 | 2                | 88.6        | 0                  | NaN    | NaN     |
| DPM 4       |                | Cohen's kappa | 70                 | 2                | 88.6        | 0                  | NaN    | NaN     |
| DPM 5       |                | Cohen's kappa | 70                 | 2                | 80          | -0.109             | -0.92  | 0.357   |
| DPM 6       |                | Cohen's kappa | 70                 | 2                | 74.3        | 0.279              | 2.82   | 0.00479 |
| DPM 7       |                | Cohen's kappa | 70                 | 2                | 88.6        | 0.278              | 2.5    | 0.0125  |
| DPM 8       |                | Cohen's kappa | 70                 | 2                | 88.6        | 0.278              | 2.5    | 0.0125  |
| DPM 9       |                | Cohen's kappa | 70                 | 2                | 82.9        | -0.0825            | -0.74  | 0.459   |
| DPM 11      |                | Cohen's kappa | 70                 | 2                | 88.6        | 0                  | NaN    | NaN     |
| DPM 12      |                | Cohen's kappa | 70                 | 2                | 88.6        | 0                  | NaN    | NaN     |
| DPM 11      |                | DPM 1         | Cohen's kappa      | 70               | 2           | 100                | NaN    | NaN     |
|             | DPM 2          | Cohen's kappa | 70                 | 2                | 85.7        | 0                  | 0      | 1       |
|             | DPM 3          | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN     |
|             | DPM 4          | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN     |
|             | DPM 5          | Cohen's kappa | 70                 | 2                | 91.4        | 0                  | NaN    | NaN     |
|             | DPM 6          | Cohen's kappa | 70                 | 2                | 68.6        | 0                  | NaN    | NaN     |
|             | DPM 7          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 8          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 9          | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
|             | DPM 10         | Cohen's kappa | 70                 | 2                | 88.6        | 0                  | NaN    | NaN     |
|             | DPM 12         | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN     |
|             | DPM 12         | DPM 1         | Cohen's kappa      | 70               | 2           | 100                | NaN    | NaN     |
| DPM 2       |                | Cohen's kappa | 70                 | 2                | 85.7        | 0                  | 0      | 1       |
| DPM 3       |                | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN     |
| DPM 4       |                | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN     |
| DPM 5       |                | Cohen's kappa | 70                 | 2                | 91.4        | 0                  | NaN    | NaN     |
| DPM 6       |                | Cohen's kappa | 70                 | 2                | 68.6        | 0                  | NaN    | NaN     |
| DPM 7       |                | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
| DPM 8       |                | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
| DPM 9       |                | Cohen's kappa | 70                 | 2                | 94.3        | 0                  | NaN    | NaN     |
| DPM 10      |                | Cohen's kappa | 70                 | 2                | 88.6        | 0                  | NaN    | NaN     |
| DPM 11      |                | Cohen's kappa | 70                 | 2                | 100         | NaN                | NaN    | NaN     |
| All 12 DPMs |                |               | Fleiss' kappa      | 70               | 12          | -                  | 0.0134 | 0.91    |

DPM = DELPHI PANEL MEMBER



TABLE 6.8: ITEM-TOTAL RELIABILITY RESULTS PER CONTINUUM (N = 270)

| CONTINUUM                                 | ITEM    | N           | Scale Mean | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |      |
|---|---------|-------------|------------|--------------------------------|----------------------------------|----------------------------------|------|
| PN: Evaluation-Description Continuum      | C11     | Question 1  | 270        | 18.696                         | 32.755                           | .753                             | .863 |
|   | C12     | Question 2  | 270        | 18.578                         | 34.594                           | .743                             | .872 |
|   | C13     | Question 3  | 270        | 19.256                         | 27.224                           | .814                             | .840 |
|   | C14     | Question 4  | 270        | 21.256                         | 27.009                           | .753                             | .858 |
|   | C15     | Question 5  | 270        | 19.889                         | 26.686                           | .708                             | .874 |
| OM: Evaluation-Description Continuum      | C16     | Question 6  | 270        | 17.826                         | 31.579                           | .775                             | .865 |
|   | C17     | Question 7  | 270        | 18.133                         | 28.265                           | .792                             | .858 |
|   | C18     | Question 8  | 270        | 20.496                         | 32.563                           | .645                             | .890 |
|   | C19     | Question 9  | 270        | 18.419                         | 27.858                           | .749                             | .871 |
|   | C20     | Question 10 | 270        | 17.644                         | 31.539                           | .768                             | .866 |
| PN: Control-Problem Orientation Continuum | C21     | Question 11 | 270        | 25.204                         | 33.843                           | .793                             | .847 |
|   | C22     | Question 12 | 270        | 25.778                         | 30.716                           | .781                             | .850 |
|   | C23     | Question 13 | 270        | 27.537                         | 34.294                           | .540                             | .899 |
|   | C24     | Question 14 | 270        | 25.115                         | 35.879                           | .734                             | .858 |
|   | C25     | Question 15 | 270        | 24.841                         | 38.618                           | .719                             | .866 |
|   | C26     | Question 16 | 270        | 24.933                         | 36.970                           | .749                             | .859 |
| OM: Control-Problem Orientation Continuum | C27     | Question 17 | 270        | 23.107                         | 58.721                           | .752                             | .913 |
|   | C28     | Question 18 | 270        | 24.337                         | 61.563                           | .665                             | .925 |
|   | C29     | Question 19 | 270        | 22.941                         | 57.892                           | .857                             | .897 |
|   | C30     | Question 20 | 270        | 22.941                         | 58.026                           | .856                             | .897 |
|   | C31     | Question 21 | 270        | 22.478                         | 62.407                           | .798                             | .906 |
|   | C32     | Question 22 | 270        | 22.456                         | 65.379                           | .781                             | .910 |
| PN: Strategy-Spontaneity Continuum        | C33     | Question 23 | 270        | 22.648                         | 70.445                           | .765                             | .936 |
|   | C34     | Question 24 | 270        | 22.800                         | 66.071                           | .824                             | .928 |
|   | C35     | Question 25 | 270        | 23.422                         | 60.460                           | .844                             | .926 |
|   | C36     | Question 26 | 270        | 24.170                         | 62.863                           | .791                             | .933 |
|   | C37     | Question 27 | 270        | 23.237                         | 62.315                           | .879                             | .921 |
|   | C38     | Question 28 | 270        | 23.556                         | 61.861                           | .845                             | .925 |
| OM: Strategy-Spontaneity Continuum        | C39     | Question 29 | 270        | 20.285                         | 74.591                           | .813                             | .940 |
|   | C40     | Question 30 | 270        | 20.337                         | 73.815                           | .859                             | .935 |
|   | C41     | Question 31 | 270        | 21.048                         | 70.299                           | .911                             | .928 |
|   | C42     | Question 32 | 270        | 21.081                         | 70.990                           | .896                             | .930 |
|   | C43     | Question 33 | 270        | 21.926                         | 76.195                           | .759                             | .946 |
|   | C44     | Question 34 | 270        | 20.748                         | 73.156                           | .791                             | .943 |
| PN: Neutrality-Empathy Continuum          | C45     | Question 35 | 270        | 18.248                         | 43.303                           | .719                             | .915 |
|   | C46     | Question 36 | 270        | 19.741                         | 36.163                           | .794                             | .899 |
|   | C47     | Question 37 | 270        | 18.659                         | 37.653                           | .819                             | .893 |
|   | C48     | Question 38 | 270        | 19.267                         | 34.858                           | .860                             | .884 |
|   | C49     | Question 39 | 270        | 18.396                         | 39.965                           | .780                             | .901 |
| OM: Neutrality-Empathy Continuum          | C50     | Question 40 | 270        | 18.363                         | 45.035                           | .767                             | .919 |
|   | C51     | Question 41 | 270        | 17.322                         | 42.769                           | .863                             | .900 |
|   | C52     | Question 42 | 270        | 17.133                         | 43.819                           | .868                             | .899 |
|   | C53     | Question 43 | 270        | 16.633                         | 49.155                           | .745                             | .923 |
|   | C54     | Question 44 | 270        | 17.941                         | 43.892                           | .812                             | .910 |
| PN: Superiority-Equality Continuum        | C55     | Question 45 | 270        | 22.078                         | 63.009                           | .770                             | .916 |
|   | C56     | Question 46 | 270        | 23.463                         | 57.915                           | .802                             | .911 |
|   | C57     | Question 47 | 270        | 22.093                         | 65.289                           | .772                             | .917 |
|   | C58     | Question 48 | 270        | 23.900                         | 58.232                           | .762                             | .918 |
|   | C59     | Question 49 | 270        | 22.581                         | 57.835                           | .853                             | .904 |
|   | C60     | Question 50 | 270        | 22.367                         | 60.322                           | .795                             | .912 |
| OM: Superiority-Equality Continuum        | C61     | Question 51 | 270        | 23.411                         | 56.213                           | .798                             | .908 |
|   | C62     | Question 52 | 270        | 23.093                         | 55.772                           | .823                             | .904 |
|   | C63     | Question 53 | 270        | 21.737                         | 64.053                           | .754                             | .915 |
|   | C64     | Question 54 | 270        | 21.600                         | 64.672                           | .749                             | .916 |
|   | C65     | Question 55 | 270        | 22.663                         | 55.161                           | .840                             | .902 |
|   | C66     | Question 56 | 270        | 22.163                         | 58.687                           | .766                             | .912 |
| PN: Certainty-Provisionalism Continuum    | C67     | Question 57 | 270        | 24.604                         | 50.604                           | .846                             | .909 |
|   | C68     | Question 58 | 270        | 25.396                         | 48.746                           | .835                             | .912 |
|   | C69     | Question 59 | 270        | 25.004                         | 48.056                           | .886                             | .903 |
|   | C70     | Question 60 | 270        | 23.581                         | 62.438                           | .646                             | .935 |
|   | C71     | Question 61 | 270        | 24.081                         | 54.581                           | .799                             | .915 |
|   | C72     | Question 62 | 270        | 24.037                         | 56.474                           | .802                             | .916 |
| OM: Certainty-Provisionalism Continuum    | C73     | Question 63 | 270        | 21.163                         | 69.237                           | .803                             | .923 |
|   | C74     | Question 64 | 270        | 19.878                         | 71.647                           | .788                             | .925 |
|   | C75     | Question 65 | 270        | 20.122                         | 68.026                           | .827                             | .920 |
|   | C76     | Question 66 | 270        | 21.070                         | 67.285                           | .862                             | .916 |
|   | C77     | Question 67 | 270        | 21.470                         | 71.655                           | .792                             | .925 |
|   | C78     | Question 68 | 270        | 19.796                         | 72.497                           | .774                             | .927 |
|   | Valid N | 270         |            |                                |                                  |                                  |      |

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.25: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' AGES AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)**

|   | Age         | N  | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|---|-------------|----|---------|----------------|------------|-------------------------------|-------------------------------|
| <b>PN: Evaluation-Description Q1- 5</b>       | 20-30 years | 44 | 4.84091 | 1.241589       | 0.20327    | 4.4407                        | 5.2411                        |
|   | 31-40 years | 75 | 4.78933 | 1.447792       | 0.15569    | 4.4828                        | 5.0959                        |
|   | 41-50 years | 89 | 4.88764 | 1.281673       | 0.14293    | 4.6062                        | 5.1691                        |
|   | 51-60 years | 52 | 4.96538 | 1.403481       | 0.18698    | 4.5972                        | 5.3335                        |
|   | 61+ years   | 10 | 5.32000 | 1.307075       | 0.42639    | 4.4805                        | 6.1595                        |
| <b>PN: Control-Problem Orientation Q11-16</b> | 20-30 years | 44 | 5.19318 | 1.170781       | 0.17666    | 4.8453                        | 5.5410                        |
|   | 31-40 years | 75 | 5.07778 | 1.243703       | 0.13531    | 4.8114                        | 5.3442                        |
|   | 41-50 years | 89 | 5.02809 | 1.031461       | 0.12421    | 4.7835                        | 5.2727                        |
|   | 51-60 years | 52 | 5.12821 | 1.289566       | 0.16250    | 4.8082                        | 5.4482                        |
|   | 61+ years   | 10 | 5.71667 | 1.157504       | 0.37057    | 4.9870                        | 6.4463                        |
| <b>PN: Strategy-Spontaneity Q23-28</b>        | 20-30 years | 44 | 5.01515 | 1.581065       | 0.23954    | 4.5435                        | 5.4868                        |
|   | 31-40 years | 75 | 4.46667 | 1.851466       | 0.18347    | 4.1054                        | 4.8279                        |
|   | 41-50 years | 89 | 4.55993 | 1.412929       | 0.16842    | 4.2283                        | 4.8915                        |
|   | 51-60 years | 52 | 4.73077 | 1.501326       | 0.22034    | 4.2969                        | 5.1646                        |
|   | 61+ years   | 10 | 5.10000 | 1.383768       | 0.50246    | 4.1107                        | 6.0893                        |
| <b>PN: Neutrality-Empathy Q35-39</b>          | 20-30 years | 44 | 5.15455 | 1.577672       | 0.22964    | 4.7024                        | 5.6067                        |
|   | 31-40 years | 75 | 4.60533 | 1.724223       | 0.17589    | 4.2590                        | 4.9516                        |
|   | 41-50 years | 89 | 4.48989 | 1.362488       | 0.16146    | 4.1720                        | 4.8078                        |
|   | 51-60 years | 52 | 4.77692 | 1.458796       | 0.21123    | 4.3610                        | 5.1928                        |
|   | 61+ years   | 10 | 5.30000 | 1.330831       | 0.48169    | 4.3516                        | 6.2484                        |
| <b>PN: Superiority-Equality Q45-50</b>        | 20-30 years | 44 | 4.87500 | 1.577509       | 0.23168    | 4.4188                        | 5.3312                        |
|   | 31-40 years | 75 | 4.46667 | 1.711996       | 0.17745    | 4.1173                        | 4.8161                        |
|   | 41-50 years | 89 | 4.36142 | 1.377863       | 0.16290    | 4.0407                        | 4.6822                        |
|   | 51-60 years | 52 | 4.55769 | 1.476351       | 0.21311    | 4.1381                        | 4.9773                        |
|   | 61+ years   | 10 | 5.36667 | 1.623135       | 0.48597    | 4.4098                        | 6.3235                        |
| <b>PN: Certainty-Provisionalism Q57-62</b>    | 20-30 years | 44 | 5.23106 | 1.486901       | 0.21790    | 4.8020                        | 5.6601                        |
|   | 31-40 years | 75 | 4.88444 | 1.617976       | 0.16690    | 4.5558                        | 5.2131                        |
|   | 41-50 years | 89 | 4.64981 | 1.366779       | 0.15321    | 4.3481                        | 4.9515                        |
|   | 51-60 years | 52 | 4.90705 | 1.251758       | 0.20044    | 4.5124                        | 5.3017                        |
|   | 61+ years   | 10 | 5.48333 | 1.510151       | 0.45707    | 4.5834                        | 6.3833                        |
| <b>OM: Evaluation-Description Q6-10</b>       | 20-30 years | 44 | 4.86364 | 1.377408       | 0.20468    | 4.4606                        | 5.2666                        |
|   | 31-40 years | 75 | 4.49333 | 1.529294       | 0.15677    | 4.1847                        | 4.8020                        |
|   | 41-50 years | 89 | 4.52809 | 1.177149       | 0.14391    | 4.2447                        | 4.8115                        |
|   | 51-60 years | 52 | 4.66154 | 1.428307       | 0.18828    | 4.2908                        | 5.0322                        |
|   | 61+ years   | 10 | 5.26000 | 0.933571       | 0.42934    | 4.4147                        | 6.1053                        |
| <b>OM: Control-Problem Orientation Q17-22</b> | 20-30 years | 44 | 4.88636 | 1.529965       | 0.23285    | 4.4279                        | 5.3448                        |
|   | 31-40 years | 75 | 4.50444 | 1.792748       | 0.17835    | 4.1533                        | 4.8556                        |
|   | 41-50 years | 89 | 4.46067 | 1.281921       | 0.16372    | 4.1383                        | 4.7830                        |
|   | 51-60 years | 52 | 4.65064 | 1.602102       | 0.21419    | 4.2289                        | 5.0724                        |
|   | 61+ years   | 10 | 5.26667 | 1.421180       | 0.48842    | 4.3050                        | 6.2284                        |
| <b>OM: Strategy-Spontaneity Q29-34</b>        | 20-30 years | 44 | 4.46212 | 1.653383       | 0.25596    | 3.9582                        | 4.9661                        |
|   | 31-40 years | 75 | 4.00222 | 1.868518       | 0.19605    | 3.6162                        | 4.3882                        |
|   | 41-50 years | 89 | 4.03371 | 1.596473       | 0.17997    | 3.6794                        | 4.3881                        |
|   | 51-60 years | 52 | 4.29487 | 1.671436       | 0.23545    | 3.8313                        | 4.7585                        |
|   | 61+ years   | 10 | 5.00000 | 1.535586       | 0.53690    | 3.9429                        | 6.0571                        |
| <b>OM: Neutrality-Empathy Q40-44</b>          | 20-30 years | 44 | 4.69091 | 1.713668       | 0.24943    | 4.1998                        | 5.1820                        |
|   | 31-40 years | 75 | 4.10400 | 1.806104       | 0.19105    | 3.7278                        | 4.4802                        |
|   | 41-50 years | 89 | 4.29213 | 1.529723       | 0.17538    | 3.9468                        | 4.6375                        |
|   | 51-60 years | 52 | 4.46923 | 1.582197       | 0.22944    | 4.0175                        | 4.9210                        |
|   | 61+ years   | 10 | 5.12000 | 1.638970       | 0.52321    | 4.0898                        | 6.1502                        |
| <b>OM: Superiority-Equality Q51-56</b>        | 20-30 years | 44 | 4.88258 | 1.632035       | 0.22806    | 4.4335                        | 5.3316                        |
|   | 31-40 years | 75 | 4.43778 | 1.610256       | 0.17468    | 4.0938                        | 4.7817                        |
|   | 41-50 years | 89 | 4.23034 | 1.393869       | 0.16035    | 3.9146                        | 4.5461                        |
|   | 51-60 years | 52 | 4.51282 | 1.459641       | 0.20978    | 4.0998                        | 4.9259                        |
|   | 61+ years   | 10 | 5.31667 | 1.506058       | 0.47838    | 4.3748                        | 6.2586                        |
| <b>OM: Certainty-Provisionalism Q63-68</b>    | 20-30 years | 44 | 4.45455 | 1.663316       | 0.24968    | 3.9629                        | 4.9462                        |
|   | 31-40 years | 75 | 4.11333 | 1.763230       | 0.19124    | 3.7368                        | 4.4899                        |
|   | 41-50 years | 89 | 3.85581 | 1.524876       | 0.17556    | 3.5101                        | 4.2015                        |
|   | 51-60 years | 52 | 4.13141 | 1.648376       | 0.22967    | 3.6792                        | 4.5836                        |
|   | 61+ years   | 10 | 4.90000 | 1.962928       | 0.52374    | 3.8688                        | 5.9312                        |

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OM = OPERATIONAL MANAGER

**TABLE 6.26: F-TEST STATISTICS OF RESPONDENTS' AGES AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)**

|   |          | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's f |
|---|----------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description<br>Q1- 5       | Age      | 4   | 3.00037        | 0.75009     | 0.4126 | 0.7995   | 0.08      |
|   | Error    | 265 | 481.78793      | 1.81807     |        |          |           |
|   | C. Total | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem Orientation<br>Q11-16 | Age      | 4   | 4.67366        | 1.16841     | 0.8509 | 0.4941   | 0.11      |
|   | Error    | 265 | 363.89877      | 1.37320     |        |          |           |
|   | C. Total | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity<br>Q23-28        | Age      | 4   | 11.44060       | 2.86015     | 1.1329 | 0.3413   | 0.13      |
|   | Error    | 265 | 669.02329      | 2.52462     |        |          |           |
|   | C. Total | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy<br>Q35-39          | Age      | 4   | 17.53450       | 4.38363     | 1.8893 | 0.1126   | 0.17      |
|   | Error    | 265 | 614.86016      | 2.32023     |        |          |           |
|   | C. Total | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality<br>Q45-50        | Age      | 4   | 15.00570       | 3.75142     | 1.5885 | 0.1777   | 0.15      |
|   | Error    | 265 | 625.83587      | 2.36164     |        |          |           |
|   | C. Total | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism<br>Q57-62    | Age      | 4   | 13.79046       | 3.44761     | 1.6503 | 0.1620   | 0.16      |
|   | Error    | 265 | 553.61654      | 2.08912     |        |          |           |
|   | C. Total | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description<br>Q6-10       | Age      | 4   | 8.74318        | 2.18580     | 1.1858 | 0.3174   | 0.13      |
|   | Error    | 265 | 488.47534      | 1.84330     |        |          |           |
|   | C. Total | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem Orientation<br>Q17-22 | Age      | 4   | 10.57827       | 2.64457     | 1.1086 | 0.3529   | 0.13      |
|   | Error    | 265 | 632.17934      | 2.38558     |        |          |           |
|   | C. Total | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity<br>Q29-34        | Age      | 4   | 15.18712       | 3.79678     | 1.3171 | 0.2639   | 0.14      |
|   | Error    | 265 | 763.89734      | 2.88263     |        |          |           |
|   | C. Total | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy<br>Q40-44          | Age      | 4   | 16.51454       | 4.12863     | 1.5082 | 0.2001   | 0.15      |
|   | Error    | 265 | 725.43643      | 2.73750     |        |          |           |
|   | C. Total | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality<br>Q51-56        | Age      | 4   | 19.84696       | 4.96174     | 2.1681 | 0.0729   | 0.18      |
|   | Error    | 265 | 606.45304      | 2.28850     |        |          |           |
|   | C. Total | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism<br>Q63-68    | Age      | 4   | 17.22771       | 4.30693     | 1.5701 | 0.1826   | 0.15      |
|   | Error    | 265 | 726.90284      | 2.74303     |        |          |           |
|   | C. Total | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.27: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' TENURE AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)**

|  | Tenures          | N   | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|--|------------------|-----|---------|----------------|------------|-------------------------------|-------------------------------|
| PN: Evaluation-Description Q1- 5       | 1 – 3 years      | 8   | 5.17500 | 1.17807        | 0.41651    | 4.1901                        | 6.1599                        |
|  | 4 – 6 years      | 129 | 4.91008 | 1.39574        | 0.12289    | 4.6669                        | 5.1532                        |
|  | 7 – 9 years      | 92  | 4.88478 | 1.33070        | 0.13873    | 4.6092                        | 5.1604                        |
|  | 10 or more years | 41  | 4.74146 | 1.25479        | 0.19596    | 4.3454                        | 5.1375                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| PN: Control-Problem Orientation Q11-16 | 1 – 3 years      | 8   | 5.31250 | 1.25811        | 0.44481    | 4.2607                        | 6.3643                        |
|  | 4 – 6 years      | 129 | 5.10465 | 1.15227        | 0.10145    | 4.9039                        | 5.3054                        |
|  | 7 – 9 years      | 92  | 5.09058 | 1.19303        | 0.12438    | 4.8435                        | 5.3376                        |
|  | 10 or more years | 41  | 5.15447 | 1.19976        | 0.18737    | 4.7758                        | 5.5332                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| PN: Strategy-Spontaneity Q23-28        | 1 – 3 years      | 8   | 5.08333 | 1.94365        | 0.68718    | 3.4584                        | 6.7083                        |
|  | 4 – 6 years      | 129 | 4.58398 | 1.55570        | 0.13697    | 4.3130                        | 4.8550                        |
|  | 7 – 9 years      | 92  | 4.73913 | 1.59178        | 0.16595    | 4.4095                        | 5.0688                        |
|  | 10 or more years | 41  | 4.64634 | 1.66508        | 0.26004    | 4.1208                        | 5.1719                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| PN: Neutrality-Empathy Q35-39          | 1 – 3 years      | 8   | 5.27500 | 1.72689        | 0.61055    | 3.8313                        | 6.7187                        |
|  | 4 – 6 years      | 129 | 4.65581 | 1.50623        | 0.13262    | 4.3934                        | 4.9182                        |
|  | 7 – 9 years      | 92  | 4.77391 | 1.59978        | 0.16679    | 4.4426                        | 5.1052                        |
|  | 10 or more years | 41  | 4.66341 | 1.45632        | 0.22744    | 4.2037                        | 5.1231                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| PN: Superiority-Equality Q45-50        | 1 – 3 years      | 8   | 5.22917 | 1.54544        | 0.54640    | 3.9371                        | 6.5212                        |
|  | 4 – 6 years      | 129 | 4.49742 | 1.52325        | 0.13412    | 4.2320                        | 4.7628                        |
|  | 7 – 9 years      | 92  | 4.62681 | 1.56822        | 0.16350    | 4.3020                        | 4.9516                        |
|  | 10 or more years | 41  | 4.40650 | 1.56438        | 0.24432    | 3.9127                        | 4.9003                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| PN: Certainty-Provisionalism Q57-62    | 1 – 3 years      | 8   | 5.39583 | 1.55823        | 0.55092    | 4.0931                        | 6.6985                        |
|  | 4 – 6 years      | 129 | 4.82171 | 1.44009        | 0.12679    | 4.5708                        | 5.0726                        |
|  | 7 – 9 years      | 92  | 5.00181 | 1.52102        | 0.15858    | 4.6868                        | 5.3168                        |
|  | 10 or more years | 41  | 4.75610 | 1.32188        | 0.20644    | 4.3389                        | 5.1733                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| OM: Evaluation-Description Q6-10       | 1 – 3 years      | 8   | 5.20000 | 1.14143        | 0.40356    | 4.2457                        | 6.1543                        |
|  | 4 – 6 years      | 129 | 4.66667 | 1.38752        | 0.12216    | 4.4249                        | 4.9084                        |
|  | 7 – 9 years      | 92  | 4.59130 | 1.37030        | 0.14286    | 4.3075                        | 4.8751                        |
|  | 10 or more years | 41  | 4.46341 | 1.29185        | 0.20175    | 4.0557                        | 4.8712                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| OM: Control-Problem Orientation Q17-22 | 1 – 3 years      | 8   | 4.83333 | 1.88562        | 0.66667    | 3.2569                        | 6.4097                        |
|  | 4 – 6 years      | 129 | 4.49612 | 1.51947        | 0.13378    | 4.2314                        | 4.7608                        |
|  | 7 – 9 years      | 92  | 4.75543 | 1.51114        | 0.15755    | 4.4425                        | 5.0684                        |
|  | 10 or more years | 41  | 4.58943 | 1.66212        | 0.25958    | 4.0648                        | 5.1141                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| OM: Strategy-Spontaneity Q29-34        | 1 – 3 years      | 8   | 4.56250 | 1.86006        | 0.65763    | 3.0075                        | 6.1175                        |
|  | 4 – 6 years      | 129 | 4.05297 | 1.68814        | 0.14863    | 3.7589                        | 4.3471                        |
|  | 7 – 9 years      | 92  | 4.32790 | 1.70889        | 0.17816    | 3.9740                        | 4.6818                        |
|  | 10 or more years | 41  | 4.17886 | 1.72538        | 0.26946    | 3.6343                        | 4.7235                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| OM: Neutrality-Empathy Q40-44          | 1 – 3 years      | 8   | 4.82500 | 1.93741        | 0.68498    | 3.2053                        | 6.4447                        |
|  | 4 – 6 years      | 129 | 4.28372 | 1.62148        | 0.14276    | 4.0012                        | 4.5662                        |
|  | 7 – 9 years      | 92  | 4.40870 | 1.70762        | 0.17803    | 4.0551                        | 4.7623                        |
|  | 10 or more years | 41  | 4.46341 | 1.66339        | 0.25978    | 3.9384                        | 4.9884                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| OM: Superiority-Equality Q51-56        | 1 – 3 years      | 8   | 5.08333 | 1.84520        | 0.65238    | 3.5407                        | 6.6260                        |
|  | 4 – 6 years      | 129 | 4.43023 | 1.50053        | 0.13211    | 4.1688                        | 4.6916                        |
|  | 7 – 9 years      | 92  | 4.54710 | 1.57753        | 0.16447    | 4.2204                        | 4.8738                        |
|  | 10 or more years | 41  | 4.42683 | 1.44964        | 0.22640    | 3.9693                        | 4.8844                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |
| OM: Certainty-Provisionalism Q63-68    | 1 – 3 years      | 8   | 4.56250 | 1.73648        | 0.61394    | 3.1108                        | 6.0142                        |
|  | 4 – 6 years      | 129 | 4.09173 | 1.62886        | 0.14341    | 3.8080                        | 4.3755                        |
|  | 7 – 9 years      | 92  | 4.19746 | 1.72515        | 0.17986    | 3.8402                        | 4.5547                        |
|  | 10 or more years | 41  | 3.92683 | 1.64952        | 0.25761    | 3.4062                        | 4.4475                        |
|  | Total            | 270 | -       | -              | -          | -                             | -                             |

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.28: F-TEST STATISTICS OF RESPONDENTS' TENURE AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)**

|  |          | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's F |
|--|----------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description Q1-5        | Tenure   | 3   | 1.59819        | 0.53273     | 0.2933 | 0.8302   | 0.06      |
|  | Error    | 266 | 483.19011      | 1.81650     |        |          |           |
|  | C. Total | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem Orientation Q11-16 | Tenure   | 3   | 0.44406        | 0.14802     | 0.1070 | 0.9560   | 0.03      |
|  | Error    | 266 | 368.12836      | 1.38394     |        |          |           |
|  | C. Total | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity Q23-28        | Tenure   | 3   | 2.76258        | 0.92086     | 0.3614 | 0.7809   | 0.06      |
|  | Error    | 266 | 677.70131      | 2.54775     |        |          |           |
|  | C. Total | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy Q35-39          | Tenure   | 3   | 3.38901        | 1.12967     | 0.4777 | 0.6980   | 0.07      |
|  | Error    | 266 | 629.00565      | 2.36468     |        |          |           |
|  | C. Total | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality Q45-50        | Tenure   | 3   | 5.43377        | 1.81126     | 0.7582 | 0.5184   | 0.09      |
|  | Error    | 266 | 635.40780      | 2.38875     |        |          |           |
|  | C. Total | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism Q57-62    | Tenure   | 3   | 4.53390        | 1.51130     | 0.7142 | 0.5443   | 0.09      |
|  | Error    | 266 | 562.87309      | 2.11606     |        |          |           |
|  | C. Total | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description Q6-10       | Tenure   | 3   | 4.04369        | 1.34790     | 0.7270 | 0.5367   | 0.09      |
|  | Error    | 266 | 493.17483      | 1.85404     |        |          |           |
|  | C. Total | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem Orientation Q17-22 | Tenure   | 3   | 4.03463        | 1.34488     | 0.5601 | 0.6418   | 0.08      |
|  | Error    | 266 | 638.72299      | 2.40121     |        |          |           |
|  | C. Total | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity Q29-34        | Tenure   | 3   | 5.26428        | 1.75476     | 0.6032 | 0.6134   | 0.08      |
|  | Error    | 266 | 773.82018      | 2.90910     |        |          |           |
|  | C. Total | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy Q40-44          | Tenure   | 3   | 3.11198        | 1.03733     | 0.3735 | 0.7722   | 0.06      |
|  | Error    | 266 | 738.83898      | 2.77759     |        |          |           |
|  | C. Total | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality Q51-56        | Tenure   | 3   | 3.74041        | 1.24680     | 0.5327 | 0.6602   | 0.08      |
|  | Error    | 266 | 622.55959      | 2.34045     |        |          |           |
|  | C. Total | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism Q63-68    | Tenure   | 3   | 3.74851        | 1.24950     | 0.4489 | 0.7183   | 0.07      |
|  | Error    | 266 | 740.38205      | 2.78339     |        |          |           |
|  | C. Total | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.29: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' LANGUAGES AND COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR IN RELATION TO THE SIX CONSTRUCTS (N = 270)**

|  | Language  | N   | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|--|-----------|-----|---------|----------------|------------|-------------------------------|-------------------------------|
| PN: Evaluation-Description Q1-5        | African   | 177 | 4.84407 | 1.35382        | 0.10176    | 4.6432                        | 5.0449                        |
|  | English   | 54  | 5.00370 | 1.35116        | 0.18387    | 4.6349                        | 5.3725                        |
|  | Afrikaans | 28  | 4.68571 | 1.35365        | 0.25582    | 4.1608                        | 5.2106                        |
|  | Other     | 11  | 5.43636 | 1.02301        | 0.30845    | 4.7491                        | 6.1236                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| PN: Control-Problem Orientation Q11-16 | African   | 177 | 5.09793 | 1.17239        | 0.08812    | 4.9240                        | 5.2718                        |
|  | English   | 54  | 5.12037 | 1.21288        | 0.16505    | 4.7893                        | 5.4514                        |
|  | Afrikaans | 28  | 4.96429 | 1.13706        | 0.21489    | 4.5234                        | 5.4052                        |
|  | Other     | 11  | 5.71212 | 0.95769        | 0.28875    | 5.0687                        | 6.3555                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| PN: Strategy-Spontaneity Q23-28        | African   | 177 | 4.67797 | 1.60792        | 0.12086    | 4.4394                        | 4.9165                        |
|  | English   | 54  | 4.63889 | 1.65428        | 0.22512    | 4.1874                        | 5.0904                        |
|  | Afrikaans | 28  | 4.33333 | 1.50514        | 0.28444    | 3.7497                        | 4.9170                        |
|  | Other     | 11  | 5.33333 | 1.05672        | 0.31861    | 4.6234                        | 6.0433                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| PN: Neutrality-Empathy Q35-39          | African   | 177 | 4.75819 | 1.51907        | 0.11418    | 4.5329                        | 4.9835                        |
|  | English   | 54  | 4.71111 | 1.66865        | 0.22707    | 4.2557                        | 5.1666                        |
|  | Afrikaans | 28  | 4.36429 | 1.44228        | 0.27256    | 3.8050                        | 4.9235                        |
|  | Other     | 11  | 4.94545 | 1.34786        | 0.40640    | 4.0399                        | 5.8510                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| PN: Superiority-Equality Q45-50        | African   | 177 | 4.55085 | 1.50323        | 0.11299    | 4.3279                        | 4.7738                        |
|  | English   | 54  | 4.54321 | 1.78486        | 0.24289    | 4.0560                        | 5.0304                        |
|  | Afrikaans | 28  | 4.40476 | 1.49445        | 0.28243    | 3.8253                        | 4.9843                        |
|  | Other     | 11  | 4.92424 | 1.08874        | 0.32827    | 4.1928                        | 5.6557                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| PN: Certainty-Provisionalism Q57-62    | African   | 177 | 4.87947 | 1.42064        | 0.10678    | 4.6687                        | 5.0902                        |
|  | English   | 54  | 4.88580 | 1.58505        | 0.21570    | 4.4532                        | 5.3184                        |
|  | Afrikaans | 28  | 4.86905 | 1.52169        | 0.28757    | 4.2790                        | 5.4591                        |
|  | Other     | 11  | 5.13636 | 1.25790        | 0.37927    | 4.2913                        | 5.9814                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| OM: Evaluation-Description Q6-10       | African   | 177 | 4.58983 | 1.37515        | 0.10336    | 4.3858                        | 4.7938                        |
|  | English   | 54  | 4.72963 | 1.36211        | 0.18536    | 4.3578                        | 5.1014                        |
|  | Afrikaans | 28  | 4.38571 | 1.37483        | 0.25982    | 3.8526                        | 4.9188                        |
|  | Other     | 11  | 5.30909 | 0.86424        | 0.26058    | 4.7285                        | 5.8897                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| OM: Control-Problem Orientation 17-22  | African   | 177 | 4.61770 | 1.56169        | 0.11738    | 4.3860                        | 4.8494                        |
|  | English   | 54  | 4.59259 | 1.68003        | 0.22862    | 4.1340                        | 5.0512                        |
|  | Afrikaans | 28  | 4.42262 | 1.39110        | 0.26289    | 3.8832                        | 4.9620                        |
|  | Other     | 11  | 5.01515 | 0.94120        | 0.28378    | 4.3828                        | 5.6475                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| OM: Strategy-Spontaneity Q29-34        | African   | 177 | 4.23446 | 1.66793        | 0.12537    | 3.9870                        | 4.4819                        |
|  | English   | 54  | 4.09568 | 1.81295        | 0.24671    | 3.6008                        | 4.5905                        |
|  | Afrikaans | 28  | 3.79762 | 1.76521        | 0.33359    | 3.1131                        | 4.4821                        |
|  | Other     | 11  | 4.71212 | 1.51674        | 0.45731    | 3.6932                        | 5.7311                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| OM: Neutrality-Empathy Q40-44          | African   | 177 | 4.37401 | 1.61147        | 0.12113    | 4.1350                        | 4.6131                        |
|  | English   | 54  | 4.41481 | 1.91157        | 0.26013    | 3.8931                        | 4.9366                        |
|  | Afrikaans | 28  | 4.00714 | 1.52848        | 0.28886    | 3.4145                        | 4.5998                        |
|  | Other     | 11  | 5.00000 | 1.41421        | 0.42640    | 4.0499                        | 5.9501                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| OM: Superiority-Equality Q51-56        | African   | 177 | 4.49906 | 1.52809        | 0.11486    | 4.2724                        | 4.7257                        |
|  | English   | 54  | 4.49691 | 1.62059        | 0.22053    | 4.0546                        | 4.9392                        |
|  | Afrikaans | 28  | 4.34524 | 1.51463        | 0.28624    | 3.7579                        | 4.9325                        |
|  | Other     | 11  | 4.65152 | 1.15339        | 0.34776    | 3.8767                        | 5.4264                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |
| OM: Certainty-Provisionalism Q63-68    | African   | 177 | 4.14407 | 1.62450        | 0.12211    | 3.9031                        | 4.3850                        |
|  | English   | 54  | 4.16667 | 1.87977        | 0.25580    | 3.6536                        | 4.6797                        |
|  | Afrikaans | 28  | 3.86905 | 1.67489        | 0.31652    | 3.2196                        | 4.5185                        |
|  | Other     | 11  | 4.06061 | 1.20939        | 0.36465    | 3.2481                        | 4.8731                        |
|  | Total     | 270 | -       | -              | -          | -                             | -                             |

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.30: F-TEST STATISTICS OF RESPONDENTS' LANGUAGES AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)**

|  |          | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's F |
|--|----------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description Q1-5        | Language | 3   | 5.51303        | 1.83768     | 1.0199 | 0.3843   | 0.11      |
|  | Error    | 266 | 479.27527      | 1.80179     |        |          |           |
|  | C. Total | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem Orientation Q11-16 | Language | 3   | 4.61070        | 1.53690     | 1.1232 | 0.3401   | 0.11      |
|  | Error    | 266 | 363.96172      | 1.36828     |        |          |           |
|  | C. Total | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity Q23-28        | Language | 3   | 8.05593        | 2.68531     | 1.0623 | 0.3656   | 0.11      |
|  | Error    | 266 | 672.40796      | 2.52785     |        |          |           |
|  | C. Total | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy Q35-39          | Language | 3   | 4.35915        | 1.45305     | 0.6154 | 0.6055   | 0.08      |
|  | Error    | 266 | 628.03551      | 2.36104     |        |          |           |
|  | C. Total | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality Q45-50        | Language | 3   | 2.13378        | 0.71126     | 0.2962 | 0.8281   | 0.06      |
|  | Error    | 266 | 638.70778      | 2.40116     |        |          |           |
|  | C. Total | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism Q57-62    | Language | 3   | 0.70050        | 0.23350     | 0.1096 | 0.9544   | 0.03      |
|  | Error    | 266 | 566.70650      | 2.13048     |        |          |           |
|  | C. Total | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description Q6-10       | Language | 3   | 7.56085        | 2.52028     | 1.3691 | 0.2526   | 0.12      |
|  | Error    | 266 | 489.65766      | 1.84082     |        |          |           |
|  | C. Total | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem Orientation Q17-22 | Language | 3   | 2.81512        | 0.93837     | 0.3900 | 0.7603   | 0.07      |
|  | Error    | 266 | 639.94250      | 2.40580     |        |          |           |
|  | C. Total | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity Q29-34        | Language | 3   | 8.11747        | 2.70582     | 0.9336 | 0.4249   | 0.10      |
|  | Error    | 266 | 770.96699      | 2.89837     |        |          |           |
|  | C. Total | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy Q40-44          | Language | 3   | 8.16379        | 2.72126     | 0.9865 | 0.3996   | 0.11      |
|  | Error    | 266 | 733.78717      | 2.75860     |        |          |           |
|  | C. Total | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality Q51-56        | Language | 3   | 0.89050        | 0.29683     | 0.1262 | 0.9445   | 0.04      |
|  | Error    | 266 | 625.40950      | 2.35116     |        |          |           |
|  | C. Total | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism Q63-68    | Language | 3   | 2.01929        | 0.67310     | 0.2413 | 0.8675   | 0.05      |
|  | Error    | 266 | 742.11126      | 2.78989     |        |          |           |
|  | C. Total | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.31: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' GENDER AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR RELATING TO THE SIX CONSTRUCTS (N = 270)**

|  | Gender | N   | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|--|--------|-----|---------|----------------|------------|-------------------------------|-------------------------------|
| PN: Evaluation-Description Q1-5        | Male   | 25  | 4.84000 | 1.28841        | 0.25768    | 4.3082                        | 5.3718                        |
|  | Female | 245 | 4.88816 | 1.35031        | 0.08627    | 4.7182                        | 5.0581                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| PN: Control-Problem Orientation Q11-16 | Male   | 25  | 5.36667 | 1.01607        | 0.20321    | 4.9473                        | 5.7861                        |
|  | Female | 245 | 5.08776 | 1.18396        | 0.07564    | 4.9388                        | 5.2367                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| PN: Strategy-Spontaneity Q23-28        | Male   | 25  | 4.80667 | 1.30940        | 0.26188    | 4.2662                        | 5.3472                        |
|  | Female | 245 | 4.64626 | 1.61795        | 0.10337    | 4.4427                        | 4.8499                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| PN: Neutrality-Empathy Q35-39          | Male   | 25  | 5.15200 | 1.14787        | 0.22957    | 4.6782                        | 5.6258                        |
|  | Female | 245 | 4.67102 | 1.56227        | 0.09981    | 4.4744                        | 4.8676                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| PN: Superiority-Equality Q45-50        | Male   | 25  | 4.64667 | 1.48474        | 0.29695    | 4.0338                        | 5.2595                        |
|  | Female | 245 | 4.53946 | 1.55193        | 0.09915    | 4.3442                        | 4.7348                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| PN: Certainty-Provisionalism Q57-62    | Male   | 25  | 4.80000 | 1.39775        | 0.27955    | 4.2230                        | 5.3770                        |
|  | Female | 245 | 4.89932 | 1.46026        | 0.09329    | 4.7156                        | 5.0831                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Evaluation-Description Q6-10       | Male   | 25  | 4.78400 | 1.20543        | 0.24109    | 4.2864                        | 5.2816                        |
|  | Female | 245 | 4.60980 | 1.37551        | 0.08788    | 4.4367                        | 4.7829                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Control-Problem Orientation 17-22  | Male   | 25  | 4.96000 | 1.36192        | 0.27238    | 4.3978                        | 5.5222                        |
|  | Female | 245 | 4.57279 | 1.56137        | 0.09975    | 4.3763                        | 4.7693                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Strategy-Spontaneity Q29-34        | Male   | 25  | 4.64667 | 1.61898        | 0.32380    | 3.9784                        | 5.3150                        |
|  | Female | 245 | 4.13333 | 1.70606        | 0.10900    | 3.9186                        | 4.3480                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Neutrality-Empathy Q40-44          | Male   | 25  | 4.78400 | 1.41530        | 0.28306    | 4.1998                        | 5.3682                        |
|  | Female | 245 | 4.32735 | 1.68059        | 0.10737    | 4.1159                        | 4.5388                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Superiority-Equality Q51-56        | Male   | 25  | 4.53333 | 1.35571        | 0.27114    | 3.9737                        | 5.0929                        |
|  | Female | 245 | 4.48435 | 1.54460        | 0.09868    | 4.2900                        | 4.6787                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |
| OM: Certainty-Provisionalism Q63-68    | Male   | 25  | 4.11333 | 1.58020        | 0.31604    | 3.4611                        | 4.7656                        |
|  | Female | 245 | 4.11701 | 1.67455        | 0.10698    | 3.9063                        | 4.3277                        |
|  | Total  | 270 | -       | -              | -          | -                             | -                             |

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER



**TABLE 6.32: F-TEST STATISTICS OF RESPONDENTS' GENDER AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR, REGARDING THE SIX CONSTRUCTS (N = 270)**

|  |          | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's F |
|--|----------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description<br>Q1-5           | Gender   | 1   | 0.05262        | 0.05262     | 0.0291 | 0.8647   | 0.01      |
|  | Error    | 268 | 484.73567      | 1.80872     |        |          |           |
|  | C. Total | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem<br>Orientation<br>Q11-16 | Gender   | 1   | 1.76472        | 1.76472     | 1.2894 | 0.2572   | 0.07      |
|  | Error    | 268 | 366.80771      | 1.36869     |        |          |           |
|  | C. Total | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity<br>Q23-28           | Gender   | 1   | 0.58371        | 0.58371     | 0.2301 | 0.6318   | 0.03      |
|  | Error    | 268 | 679.88018      | 2.53687     |        |          |           |
|  | C. Total | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy<br>Q35-39             | Gender   | 1   | 5.24802        | 5.24802     | 2.2426 | 0.1354   | 0.09      |
|  | Error    | 268 | 627.14664      | 2.34010     |        |          |           |
|  | C. Total | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality<br>Q45-50           | Gender   | 1   | 0.26075        | 0.26075     | 0.1091 | 0.7414   | 0.02      |
|  | Error    | 268 | 640.58082      | 2.39023     |        |          |           |
|  | C. Total | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism<br>Q57-62       | Gender   | 1   | 0.22378        | 0.22378     | 0.1057 | 0.7453   | 0.02      |
|  | Error    | 268 | 567.18322      | 2.11636     |        |          |           |
|  | C. Total | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description<br>Q6-10          | Gender   | 1   | 0.68843        | 0.68843     | 0.3716 | 0.5427   | 0.04      |
|  | Error    | 268 | 496.53009      | 1.85272     |        |          |           |
|  | C. Total | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem<br>Orientation<br>Q17-22 | Gender   | 1   | 3.40124        | 3.40124     | 1.4257 | 0.2335   | 0.07      |
|  | Error    | 268 | 639.35637      | 2.38566     |        |          |           |
|  | C. Total | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity<br>Q29-34           | Gender   | 1   | 5.97780        | 5.97780     | 2.0722 | 0.1512   | 0.09      |
|  | Error    | 268 | 773.10667      | 2.88473     |        |          |           |
|  | C. Total | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy<br>Q40-44             | Gender   | 1   | 4.73059        | 4.73059     | 1.7197 | 0.1909   | 0.08      |
|  | Error    | 268 | 737.22038      | 2.75082     |        |          |           |
|  | C. Total | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality<br>Q51-56           | Gender   | 1   | 0.05442        | 0.05442     | 0.0233 | 0.8788   | 0.00      |
|  | Error    | 268 | 626.24558      | 2.33674     |        |          |           |
|  | C. Total | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism<br>Q63-68       | Gender   | 1   | 0.00031        | 0.00031     | 0.0001 | 0.9916   | 0.00      |
|  | Error    | 268 | 744.13025      | 2.77661     |        |          |           |
|  | C. Total | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.33: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' HOSPITALS AND COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR IN RELATION TO THE SIX CONSTRUCTS (N = 270)**

|  | Hospital   | N   | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|--|------------|-----|---------|----------------|------------|-------------------------------|-------------------------------|
| PN: Evaluation-Description Q1-5        | Hospital A | 90  | 4.66222 | 1.47142        | 0.15510    | 4.3540                        | 4.9704                        |
|  | Hospital B | 90  | 4.96222 | 1.27196        | 0.13408    | 4.6958                        | 5.2286                        |
|  | Hospital C | 90  | 5.02667 | 1.26000        | 0.13282    | 4.7628                        | 5.2906                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| PN: Control-Problem Orientation Q11-16 | Hospital A | 90  | 4.97222 | 1.40030        | 0.14760    | 4.6789                        | 5.2655                        |
|  | Hospital B | 90  | 5.16667 | 1.06616        | 0.11238    | 4.9434                        | 5.3900                        |
|  | Hospital C | 90  | 5.20185 | 1.00638        | 0.10608    | 4.9911                        | 5.4126                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| PN: Strategy-Spontaneity Q23-28        | Hospital A | 90  | 4.49074 | 1.71400        | 0.18067    | 4.1317                        | 4.8497                        |
|  | Hospital B | 90  | 4.70185 | 1.54267        | 0.16261    | 4.3787                        | 5.0250                        |
|  | Hospital C | 90  | 4.79074 | 1.50997        | 0.15916    | 4.4745                        | 5.1070                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| PN: Neutrality-Empathy Q35-39          | Hospital A | 90  | 4.56889 | 1.65140        | 0.17407    | 4.2230                        | 4.9148                        |
|  | Hospital B | 90  | 4.73778 | 1.48116        | 0.15613    | 4.4276                        | 5.0480                        |
|  | Hospital C | 90  | 4.84000 | 1.46516        | 0.15444    | 4.5331                        | 5.1469                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| PN: Superiority-Equality Q45-50        | Hospital A | 90  | 4.38889 | 1.61956        | 0.17072    | 4.0497                        | 4.7281                        |
|  | Hospital B | 90  | 4.57222 | 1.53223        | 0.16151    | 4.2513                        | 4.8931                        |
|  | Hospital C | 90  | 4.68704 | 1.47785        | 0.15578    | 4.3775                        | 4.9966                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| PN: Certainty-Provisionalism Q57-62    | Hospital A | 90  | 4.71852 | 1.60594        | 0.16928    | 4.3822                        | 5.0549                        |
|  | Hospital B | 90  | 4.93704 | 1.37586        | 0.14503    | 4.6489                        | 5.2252                        |
|  | Hospital C | 90  | 5.01481 | 1.36220        | 0.14359    | 4.7295                        | 5.3001                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Evaluation-Description Q6-10       | Hospital A | 90  | 4.46444 | 1.54711        | 0.16308    | 4.1404                        | 4.7885                        |
|  | Hospital B | 90  | 4.67111 | 1.23518        | 0.13020    | 4.4124                        | 4.9298                        |
|  | Hospital C | 90  | 4.74222 | 1.27491        | 0.13439    | 4.4752                        | 5.0092                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Control-Problem Orientation 17-22  | Hospital A | 90  | 4.43333 | 1.64267        | 0.17315    | 4.0893                        | 4.7774                        |
|  | Hospital B | 90  | 4.62037 | 1.49761        | 0.15786    | 4.3067                        | 4.9340                        |
|  | Hospital C | 90  | 4.77222 | 1.49081        | 0.15714    | 4.4600                        | 5.0845                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Strategy-Spontaneity Q29-34        | Hospital A | 90  | 4.06111 | 1.79183        | 0.18888    | 3.6858                        | 4.4364                        |
|  | Hospital B | 90  | 4.19444 | 1.64295        | 0.17318    | 3.8503                        | 4.5386                        |
|  | Hospital C | 90  | 4.28704 | 1.67861        | 0.17694    | 3.9355                        | 4.6386                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Neutrality-Empathy Q40-44          | Hospital A | 90  | 4.20667 | 1.72110        | 0.18142    | 3.8462                        | 4.5671                        |
|  | Hospital B | 90  | 4.40667 | 1.59788        | 0.16843    | 4.0720                        | 4.7413                        |
|  | Hospital C | 90  | 4.49556 | 1.66638        | 0.17565    | 4.1465                        | 4.8446                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Superiority-Equality Q51-56        | Hospital A | 90  | 4.31481 | 1.61366        | 0.17009    | 3.9768                        | 4.6528                        |
|  | Hospital B | 90  | 4.49259 | 1.50383        | 0.15852    | 4.1776                        | 4.8076                        |
|  | Hospital C | 90  | 4.65926 | 1.45316        | 0.15318    | 4.3549                        | 4.9636                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |
| OM: Certainty-Provisionalism Q63-68    | Hospital A | 90  | 3.94444 | 1.75123        | 0.18460    | 3.5777                        | 4.3112                        |
|  | Hospital B | 90  | 4.17222 | 1.60493        | 0.16917    | 3.8361                        | 4.5084                        |
|  | Hospital C | 90  | 4.23333 | 1.63448        | 0.17229    | 3.8910                        | 4.5757                        |
|  | Total      | 270 | -       | -              | -          | -                             | -                             |

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.34: F-TEST STATISTICS OF RESPONDENTS' HOSPITALS AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR IN RELATION TO THE SIX CONSTRUCTS (N = 270)**

|  |          | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's F |
|--|----------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description Q1-5        | Hospital | 2   | 6.80919        | 3.40459     | 1.9018 | 0.1513   | 0.12      |
|  | Error    | 267 | 477.97911      | 1.79018     |        |          |           |
|  | C. Total | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem Orientation Q11-16 | Hospital | 2   | 2.75329        | 1.37665     | 1.0048 | 0.3675   | 0.09      |
|  | Error    | 267 | 365.81914      | 1.37011     |        |          |           |
|  | C. Total | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity Q23-28        | Hospital | 2   | 4.27407        | 2.13704     | 0.8438 | 0.4312   | 0.08      |
|  | Error    | 267 | 676.18981      | 2.53255     |        |          |           |
|  | C. Total | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy Q35-39          | Hospital | 2   | 3.37422        | 1.68711     | 0.7161 | 0.4896   | 0.07      |
|  | Error    | 267 | 629.02044      | 2.35588     |        |          |           |
|  | C. Total | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality Q45-50        | Hospital | 2   | 4.07058        | 2.03529     | 0.8534 | 0.4271   | 0.08      |
|  | Error    | 267 | 636.77099      | 2.38491     |        |          |           |
|  | C. Total | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism Q57-62    | Hospital | 2   | 4.24774        | 2.12387     | 1.0069 | 0.3667   | 0.09      |
|  | Error    | 267 | 563.15926      | 2.10921     |        |          |           |
|  | C. Total | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description Q6-10       | Hospital | 2   | 3.74785        | 1.87393     | 1.0139 | 0.3642   | 0.09      |
|  | Error    | 267 | 493.47067      | 1.84820     |        |          |           |
|  | C. Total | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem Orientation Q17-22 | Hospital | 2   | 5.18663        | 2.59331     | 1.0860 | 0.3390   | 0.09      |
|  | Error    | 267 | 637.57099      | 2.38791     |        |          |           |
|  | C. Total | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity Q29-34        | Hospital | 2   | 2.32181        | 1.16091     | 0.3990 | 0.6714   | 0.05      |
|  | Error    | 267 | 776.76265      | 2.90922     |        |          |           |
|  | C. Total | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy Q40-44          | Hospital | 2   | 3.94074        | 1.97037     | 0.7128 | 0.4912   | 0.07      |
|  | Error    | 267 | 738.01022      | 2.76408     |        |          |           |
|  | C. Total | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality Q51-56        | Hospital | 2   | 5.34074        | 2.67037     | 1.1482 | 0.3188   | 0.09      |
|  | Error    | 267 | 620.95926      | 2.32569     |        |          |           |
|  | C. Total | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism Q63-68    | Hospital | 2   | 4.17222        | 2.08611     | 0.7527 | 0.4721   | 0.07      |
|  | Error    | 267 | 739.95833      | 2.77138     |        |          |           |
|  | C. Total | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.35: ONE-WAY ANOVA STATISTICS OF RESPONDENTS' UNIT/WARD AND COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)**

|  | Units/ wards    | N   | Mean    | Std. Deviation | Std. Error | Lower confidence interval 95% | Upper confidence interval 95% |
|--|-----------------|-----|---------|----------------|------------|-------------------------------|-------------------------------|
| PN: Evaluation-Description Q1-5        | Medical unit    | 98  | 4.60612 | 1.26734        | 0.12802    | 4.3520                        | 4.8602                        |
|  | Surgical unit   | 88  | 5.11364 | 1.22795        | 0.13090    | 4.8535                        | 5.3738                        |
|  | Speciality unit | 77  | 4.89091 | 1.50107        | 0.17106    | 4.5502                        | 5.2316                        |
|  | Administration  | 7   | 5.80000 | 1.18884        | 0.44934    | 4.7005                        | 6.8995                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| PN: Control-Problem Orientation Q11-16 | Medical unit    | 98  | 4.90816 | 1.14051        | 0.11521    | 4.6795                        | 5.1368                        |
|  | Surgical unit   | 88  | 5.35417 | 1.13259        | 0.12073    | 5.1142                        | 5.5941                        |
|  | Speciality unit | 77  | 5.03247 | 1.21246        | 0.13817    | 4.7573                        | 5.3077                        |
|  | Administration  | 7   | 5.85714 | 0.95466        | 0.36083    | 4.9742                        | 6.7401                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| PN: Strategy-Spontaneity Q23-28        | Medical unit    | 98  | 4.45748 | 1.47513        | 0.14901    | 4.1617                        | 4.7532                        |
|  | Surgical unit   | 88  | 4.79167 | 1.77561        | 0.18928    | 4.4155                        | 5.1679                        |
|  | Speciality unit | 77  | 4.62338 | 1.48294        | 0.16900    | 4.2868                        | 4.9600                        |
|  | Administration  | 7   | 6.28571 | 0.79765        | 0.30148    | 5.5480                        | 7.0234                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| PN: Neutrality-Empathy Q35-39          | Medical unit    | 98  | 4.38367 | 1.42631        | 0.14408    | 4.0977                        | 4.6696                        |
|  | Surgical unit   | 88  | 4.96364 | 1.63512        | 0.17430    | 4.6172                        | 5.3101                        |
|  | Speciality unit | 77  | 4.74286 | 1.48956        | 0.16975    | 4.4048                        | 5.0809                        |
|  | Administration  | 7   | 5.94286 | 1.08145        | 0.40875    | 4.9427                        | 6.9430                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| PN: Superiority-Equality Q45-50        | Medical unit    | 98  | 4.24830 | 1.45124        | 0.14660    | 3.9573                        | 4.5393                        |
|  | Surgical unit   | 88  | 4.79167 | 1.59406        | 0.16993    | 4.4539                        | 5.1294                        |
|  | Speciality unit | 77  | 4.51732 | 1.54243        | 0.17578    | 4.1672                        | 4.8674                        |
|  | Administration  | 7   | 6.07143 | 0.84906        | 0.32091    | 5.2862                        | 6.8567                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| PN: Certainty-Provisionalism Q57-62    | Medical unit    | 98  | 4.61905 | 1.39690        | 0.14111    | 4.3390                        | 4.8991                        |
|  | Surgical unit   | 88  | 5.14015 | 1.50497        | 0.16043    | 4.8213                        | 5.4590                        |
|  | Speciality unit | 77  | 4.87013 | 1.42493        | 0.16239    | 4.5467                        | 5.1935                        |
|  | Administration  | 7   | 5.76190 | 1.20515        | 0.45550    | 4.6473                        | 6.8765                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| OM: Evaluation-Description Q6-10       | Medical unit    | 98  | 4.35306 | 1.31942        | 0.13328    | 4.0885                        | 4.6176                        |
|  | Surgical unit   | 88  | 4.89318 | 1.37095        | 0.14614    | 4.6027                        | 5.1837                        |
|  | Speciality unit | 77  | 4.58701 | 1.36511        | 0.15557    | 4.2772                        | 4.8969                        |
|  | Administration  | 7   | 5.51429 | 0.81533        | 0.30817    | 4.7602                        | 6.2683                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| OM: Control-Problem Orientation 17-22  | Medical unit    | 98  | 4.48469 | 1.42432        | 0.14388    | 4.1991                        | 4.7703                        |
|  | Surgical unit   | 88  | 4.69697 | 1.70615        | 0.18188    | 4.3355                        | 5.0585                        |
|  | Speciality unit | 77  | 4.54762 | 1.50313        | 0.17130    | 4.2065                        | 4.8888                        |
|  | Administration  | 7   | 5.90476 | 1.06222        | 0.40148    | 4.9224                        | 6.8871                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| OM: Strategy-Spontaneity Q29-34        | Medical unit    | 98  | 3.95748 | 1.63182        | 0.16484    | 3.6303                        | 4.2846                        |
|  | Surgical unit   | 88  | 4.38068 | 1.79024        | 0.19084    | 4.0014                        | 4.7600                        |
|  | Speciality unit | 77  | 4.09091 | 1.64360        | 0.18731    | 3.7179                        | 4.4640                        |
|  | Administration  | 7   | 5.78571 | 1.26460        | 0.47797    | 4.6162                        | 6.9553                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| OM: Neutrality-Empathy Q40-44          | Medical unit    | 98  | 4.08163 | 1.51415        | 0.15295    | 3.7781                        | 4.3852                        |
|  | Surgical unit   | 88  | 4.57727 | 1.76308        | 0.18794    | 4.2037                        | 4.9508                        |
|  | Speciality unit | 77  | 4.36364 | 1.68452        | 0.19197    | 3.9813                        | 4.7460                        |
|  | Administration  | 7   | 5.85714 | 1.00475        | 0.37976    | 4.9279                        | 6.7864                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| OM: Superiority-Equality Q51-56        | Medical unit    | 98  | 4.15306 | 1.40948        | 0.14238    | 3.8705                        | 4.4356                        |
|  | Surgical unit   | 88  | 4.75000 | 1.56694        | 0.16704    | 4.4180                        | 5.0820                        |
|  | Speciality unit | 77  | 4.49134 | 1.54865        | 0.17649    | 4.1398                        | 4.8428                        |
|  | Administration  | 7   | 5.88095 | 1.08745        | 0.41102    | 4.8752                        | 6.8867                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |
| OM: Certainty-Provisionalism Q63-68    | Medical unit    | 98  | 3.76701 | 1.50367        | 0.15189    | 3.4655                        | 4.0685                        |
|  | Surgical unit   | 88  | 4.44129 | 1.76420        | 0.18806    | 4.0675                        | 4.8151                        |
|  | Speciality unit | 77  | 4.11255 | 1.67202        | 0.19054    | 3.7331                        | 4.4921                        |
|  | Administration  | 7   | 4.97619 | 1.58823        | 0.60030    | 3.5073                        | 6.4451                        |
|  | Total           | 270 | -       | -              | -          | -                             | -                             |

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.36: F-TEST STATISTICS OF RESPONDENTS' UNIT/WARD AND COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR IN TERMS OF THE SIX CONSTRUCTS (N = 270)**

|  |            | DF  | Sum of Squares | Mean Square | F      | Prob > F | Cohen's F |
|--|------------|-----|----------------|-------------|--------|----------|-----------|
| PN: Evaluation-Description<br>Q1-5           | Unit/ ward | 3   | 18.08470       | 6.02823     | 3.4358 | 0.0175*  | 0.20      |
|  | Error      | 266 | 466.70360      | 1.75452     |        |          |           |
|  | C. Total   | 269 | 484.78830      |             |        |          |           |
| PN: Control-Problem<br>Orientation<br>Q11-16 | Unit/ ward | 3   | 13.60562       | 4.53521     | 3.3985 | 0.0184*  | 0.20      |
|  | Error      | 266 | 354.96680      | 1.33446     |        |          |           |
|  | C. Total   | 269 | 368.57243      |             |        |          |           |
| PN: Strategy-Spontaneity<br>Q23-28           | Unit/ ward | 3   | 24.14844       | 8.04948     | 3.2624 | 0.0220*  | 0.19      |
|  | Error      | 266 | 656.31545      | 2.46735     |        |          |           |
|  | C. Total   | 269 | 680.46389      |             |        |          |           |
| PN: Neutrality-Empathy<br>Q35-39             | Unit/ ward | 3   | 26.81144       | 8.93715     | 3.9256 | 0.0091*  | 0.21      |
|  | Error      | 266 | 605.58323      | 2.27663     |        |          |           |
|  | C. Total   | 269 | 632.39467      |             |        |          |           |
| PN: Superiority-Equality<br>Q45-50           | Unit/ ward | 3   | 30.34509       | 10.1150     | 4.4072 | 0.0048*  | 0.22      |
|  | Error      | 266 | 610.49647      | 2.2951      |        |          |           |
|  | C. Total   | 269 | 640.84156      |             |        |          |           |
| PN: Certainty-Provisionalism<br>Q57-62       | Unit/ ward | 3   | 18.05328       | 6.01776     | 2.9138 | 0.0348*  | 0.18      |
|  | Error      | 266 | 549.35372      | 2.06524     |        |          |           |
|  | C. Total   | 269 | 567.40700      |             |        |          |           |
| OM: Evaluation-Description<br>Q6-10          | Unit/ ward | 3   | 19.22294       | 6.40765     | 3.5658 | 0.0147*  | 0.20      |
|  | Error      | 266 | 477.99558      | 1.79698     |        |          |           |
|  | C. Total   | 269 | 497.21852      |             |        |          |           |
| OM: Control-Problem<br>Orientation<br>Q17-22 | Unit/ ward | 3   | 14.23836       | 4.74612     | 2.0086 | 0.1131   | 0.15      |
|  | Error      | 266 | 628.51925      | 2.36285     |        |          |           |
|  | C. Total   | 269 | 642.75761      |             |        |          |           |
| OM: Strategy-Spontaneity<br>Q29-34           | Unit/ ward | 3   | 27.05559       | 9.01853     | 3.1899 | 0.0242*  | 0.19      |
|  | Error      | 266 | 752.02888      | 2.82718     |        |          |           |
|  | C. Total   | 269 | 779.08447      |             |        |          |           |
| OM: Neutrality-Empathy<br>Q40-44             | Unit/ ward | 3   | 27.41415       | 9.13805     | 3.4018 | 0.0183*  | 0.20      |
|  | Error      | 266 | 714.53681      | 2.68623     |        |          |           |
|  | C. Total   | 269 | 741.95096      |             |        |          |           |
| OM: Superiority-Equality<br>Q51-56           | Unit/ ward | 3   | 30.61756       | 10.2059     | 4.5574 | 0.0039*  | 0.23      |
|  | Error      | 266 | 595.68244      | 2.2394      |        |          |           |
|  | C. Total   | 269 | 626.30000      |             |        |          |           |
| OM: Certainty-Provisionalism<br>Q63-68       | Unit/ ward | 3   | 26.42779       | 8.80926     | 3.2650 | 0.0219*  | 0.19      |
|  | Error      | 266 | 717.70276      | 2.69813     |        |          |           |
|  | C. Total   | 269 | 744.13056      |             |        |          |           |

p < 0.05 level

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

**TABLE 6.37: TUKEY-KRAMER STATISTICS OF RESPONDENTS' UNIT/WARD AND THEIR COMMUNICATION BEHAVIOUR AND PERCEPTIONS OF OPERATIONAL MANAGER COMMUNICATION BEHAVIOUR REGARDING THE SIX CONSTRUCTS (N = 270)**

|  | Units/ wards    | Administration | Surgical      | Speciality Unit | Medical       |
|--|-----------------|----------------|---------------|-----------------|---------------|
| PN: Evaluation-Description Q1-5        | Administration  | -1.8305        | -0.6585       | -0.4428         | -0.1459       |
|  | Surgical        | -0.6585        | -0.5163       | -0.3117         | <b>0.0046</b> |
|  | Speciality Unit | -0.4428        | -0.3117       | -0.5519         | -0.2367       |
|  | Medical         | -0.1459        | <b>0.0046</b> | -0.2367         | -0.4892       |
| PN: Control-Problem Orientation Q11-16 | Administration  | -1.5964        | -0.6699       | -0.3543         | -0.2195       |
|  | Surgical        | -0.6699        | -0.4502       | -0.1443         | <b>0.0074</b> |
|  | Speciality Unit | -0.3543        | -0.1443       | -0.4813         | -0.3305       |
|  | Medical         | -0.2195        | <b>0.0074</b> | -0.3305         | -0.4267       |
| PN: Strategy-Spontaneity Q23-28        | Administration  | -2.1707        | -0.1008       | <b>0.0592</b>   | <b>0.2394</b> |
|  | Surgical        | -0.1008        | -0.6122       | -0.4654         | -0.2622       |
|  | Speciality Unit | <b>0.0592</b>  | -0.4654       | -0.6545         | -0.4525       |
|  | Medical         | <b>0.2394</b>  | -0.2622       | -0.4525         | -0.5801       |
| PN: Neutrality-Empathy Q35-39          | Administration  | -2.0851        | -0.5527       | -0.3400         | <b>0.0330</b> |
|  | Surgical        | -0.5527        | -0.5881       | -0.3879         | <b>0.0071</b> |
|  | Speciality Unit | -0.3400        | -0.3879       | -0.6287         | -0.2349       |
|  | Medical         | <b>0.0330</b>  | <b>0.0071</b> | -0.2349         | -0.5573       |
| PN: Superiority-Equality Q45-50        | Administration  | -2.0936        | -0.2584       | <b>0.0079</b>   | <b>0.2908</b> |
|  | Surgical        | -0.2584        | -0.5905       | -0.3368         | -0.0318       |
|  | Speciality Unit | <b>0.0079</b>  | -0.3368       | -0.6312         | -0.3274       |
|  | Medical         | <b>0.2908</b>  | -0.0318       | -0.3274         | -0.5595       |
| PN: Certainty-Provisionalism Q57-62    | Administration  | -1.9860        | -0.8373       | -0.5750         | -0.3107       |
|  | Surgical        | -0.8373        | -0.5601       | -0.3098         | -0.0245       |
|  | Speciality Unit | -0.5750        | -0.3098       | -0.5988         | -0.3147       |
|  | Medical         | -0.3107        | -0.0245       | -0.3147         | -0.5308       |
| OM: Evaluation-Description Q6-10       | Administration  | -1.8525        | -0.7399       | -0.4409         | -0.1947       |
|  | Surgical        | -0.7399        | -0.5225       | -0.2346         | <b>0.0311</b> |
|  | Speciality Unit | -0.4409        | -0.2346       | -0.5586         | -0.2938       |
|  | Medical         | -0.1947        | <b>0.0311</b> | -0.2938         | -0.4951       |
| OM: Control-Problem Orientation Q17-22 | Administration  | -2.1243        | -0.3529       | -0.2117         | -0.1347       |
|  | Surgical        | -0.3529        | -0.5991       | -0.4708         | -0.3714       |
|  | Speciality Unit | -0.2117        | -0.4708       | -0.6405         | -0.5423       |
|  | Medical         | -0.1347        | -0.3714       | -0.5423         | -0.5677       |
| OM: Strategy-Spontaneity Q29-34        | Administration  | -2.3236        | -0.3021       | -0.0213         | <b>0.1275</b> |
|  | Surgical        | -0.3021        | -0.6553       | -0.3886         | -0.2152       |
|  | Speciality Unit | -0.0213        | -0.3886       | -0.7006         | -0.5286       |
|  | Medical         | <b>0.1275</b>  | -0.2152       | -0.5286         | -0.6210       |
| OM: Neutrality-Empathy Q40-44          | Administration  | -2.2650        | -0.3842       | -0.1793         | <b>0.1177</b> |
|  | Surgical        | -0.3842        | -0.6388       | -0.4476         | -0.1267       |
|  | Speciality Unit | -0.1793        | -0.4476       | -0.6829         | -0.3633       |
|  | Medical         | <b>0.1177</b>  | -0.1267       | -0.3633         | -0.6053       |
| OM: Superiority-Equality Q51-56        | Administration  | -2.0680        | -0.3884       | -0.1377         | <b>0.2143</b> |
|  | Surgical        | -0.3884        | -0.5833       | -0.3451         | <b>0.0288</b> |
|  | Speciality Unit | -0.1377        | -0.3451       | -0.6235         | -0.2509       |
|  | Medical         | <b>0.2143</b>  | <b>0.0288</b> | -0.2509         | -0.5527       |
| OM: Certainty-Provisionalism Q63-68    | Administration  | -2.2700        | -1.1328       | -0.8128         | -0.4523       |
|  | Surgical        | -1.1328        | -0.6402       | -0.3340         | <b>0.0506</b> |
|  | Speciality Unit | -0.8128        | -0.3340       | -0.6844         | -0.3012       |
|  | Medical         | -0.4523        | <b>0.0506</b> | -0.3012         | -0.6067       |

PN = PROFESSIONAL NURSE

OM = OPERATIONAL MANAGER

TABLE 6.38: F-TEST STATISTICS FOR THE FULL MODELS (N = 270)

|   |          | DF  | Sum of Squares | Mean Square | F      | Prob > F |
|---|----------|-----|----------------|-------------|--------|----------|
| PN: Evaluation-Description<br>Q1-5        | Model    | 16  | 42.53430       | 2.65839     | 1.5208 | 0.0925   |
|   | Error    | 253 | 442.25400      | 1.74804     |        |          |
|   | C. Total | 269 | 484.78830      |             |        |          |
| PN: Control-Problem Orientation<br>Q11-16 | Model    | 16  | 29.86527       | 1.86658     | 1.3943 | 0.1444   |
|   | Error    | 253 | 338.70716      | 1.33876     |        |          |
|   | C. Total | 269 | 368.57243      |             |        |          |
| PN: Strategy-Spontaneity<br>Q23-28        | Model    | 16  | 54.95711       | 3.43482     | 1.3893 | 0.1469   |
|   | Error    | 253 | 625.50678      | 2.47236     |        |          |
|   | C. Total | 269 | 680.46389      |             |        |          |
| PN: Neutrality-Empathy<br>Q35-39          | Model    | 16  | 59.13075       | 3.69567     | 1.6310 | 0.0613   |
|   | Error    | 253 | 573.26392      | 2.26587     |        |          |
|   | C. Total | 269 | 632.39467      |             |        |          |
| PN: Superiority-Equality<br>Q45-50        | Model    | 16  | 61.41089       | 3.83818     | 1.6759 | 0.0515   |
|   | Error    | 253 | 579.43067      | 2.29024     |        |          |
|   | C. Total | 269 | 640.84156      |             |        |          |
| PN: Certainty-Provisionalism<br>Q57-62    | Model    | 16  | 44.65209       | 2.79076     | 1.3507 | 0.1671   |
|   | Error    | 253 | 522.75490      | 2.06622     |        |          |
|   | C. Total | 269 | 567.40700      |             |        |          |
| OM: Evaluation-Description<br>Q6-10       | Model    | 16  | 47.86086       | 2.99130     | 1.6842 | 0.0499*  |
|   | Error    | 253 | 449.35766      | 1.77612     |        |          |
|   | C. Total | 269 | 497.21852      |             |        |          |
| OM: Control-Problem Orientation<br>Q17-22 | Model    | 16  | 42.31090       | 2.64443     | 1.1142 | 0.3418   |
|   | Error    | 253 | 600.44672      | 2.37331     |        |          |
|   | C. Total | 269 | 642.75761      |             |        |          |
| OM: Strategy-Spontaneity<br>Q29-34        | Model    | 16  | 64.88918       | 4.05557     | 1.4367 | 0.1248   |
|   | Error    | 253 | 714.19529      | 2.82291     |        |          |
|   | C. Total | 269 | 779.08447      |             |        |          |
| OM: Neutrality-Empathy<br>Q40-44          | Model    | 16  | 63.33856       | 3.95866     | 1.4759 | 0.1087   |
|   | Error    | 253 | 678.61240      | 2.68226     |        |          |
|   | C. Total | 269 | 741.95096      |             |        |          |
| OM: Superiority-Equality<br>Q51-56        | Model    | 16  | 61.40250       | 3.83766     | 1.7188 | 0.0436*  |
|   | Error    | 253 | 564.89750      | 2.23280     |        |          |
|   | C. Total | 269 | 626.30000      |             |        |          |
| OM: Certainty-Provisionalism<br>Q63-68    | Model    | 16  | 53.30667       | 3.33167     | 1.2202 | 0.2524   |
|   | Error    | 253 | 690.82388      | 2.73053     |        |          |
|   | C. Total | 269 | 744.13056      |             |        |          |

p < 0.05 level

PN = PROFESSIONAL NURSE

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TABLE 6.39: EFFECT-TEST STATISTICS FOR THE FULL MODELS (N = 270)

|   | Factors   | N Parameter | DF | Sum of Squares | F      | Prob > F |
|---|-----------|-------------|----|----------------|--------|----------|
| PN: Evaluation-Description<br>Q1-5        | Age       | 4           | 4  | 5.300370       | 0.7580 | 0.5535   |
|   | Tenure    | 3           | 3  | 4.730850       | 0.9021 | 0.4407   |
|   | Language  | 3           | 3  | 9.046062       | 1.7250 | 0.1623   |
|   | Gender    | 1           | 1  | 0.567923       | 0.3249 | 0.5692   |
|   | Hospital  | 2           | 2  | 6.793014       | 1.9430 | 0.1454   |
|   | Unit/ward | 3           | 3  | 23.906940      | 4.5588 | 0.0039*  |
| PN: Control-Problem Orientation<br>Q11-16 | Age       | 4           | 4  | 4.001170       | 0.7472 | 0.5607   |
|   | Tenure    | 3           | 3  | 0.373918       | 0.0931 | 0.9638   |
|   | Language  | 3           | 3  | 7.931657       | 1.9749 | 0.1182   |
|   | Gender    | 1           | 1  | 0.982423       | 0.7338 | 0.3925   |
|   | Hospital  | 2           | 2  | 2.624370       | 0.9801 | 0.3767   |
|   | Unit/ward | 3           | 3  | 16.163211      | 4.0244 | 0.0080*  |
| PN: Strategy-Spontaneity<br>Q23-28        | Age       | 4           | 4  | 10.202990      | 1.0317 | 0.3914   |
|   | Tenure    | 3           | 3  | 3.731671       | 0.5031 | 0.6805   |
|   | Language  | 3           | 3  | 10.781971      | 1.4537 | 0.2277   |
|   | Gender    | 1           | 1  | 0.011334       | 0.0046 | 0.9461   |
|   | Hospital  | 2           | 2  | 4.832272       | 0.9773 | 0.3778   |
|   | Unit/ward | 3           | 3  | 29.581741      | 3.9883 | 0.0084*  |
| PN: Neutrality-Empathy<br>Q35-39          | Age       | 4           | 4  | 14.055236      | 1.5508 | 0.1881   |
|   | Tenure    | 3           | 3  | 2.811977       | 0.4137 | 0.7433   |
|   | Language  | 3           | 3  | 6.020142       | 0.8856 | 0.4491   |
|   | Gender    | 1           | 1  | 3.720570       | 1.6420 | 0.2012   |
|   | Hospital  | 2           | 2  | 3.520715       | 0.7769 | 0.4609   |
|   | Unit/ward | 3           | 3  | 28.037723      | 4.1247 | 0.0070*  |
| PN: Superiority-Equality<br>Q45-50        | Age       | 4           | 4  | 13.321283      | 1.4541 | 0.2167   |
|   | Tenure    | 3           | 3  | 7.406570       | 1.0780 | 0.3590   |
|   | Language  | 3           | 3  | 5.940191       | 0.8646 | 0.4600   |
|   | Gender    | 1           | 1  | 0.000325       | 0.0001 | 0.9905   |
|   | Hospital  | 2           | 2  | 4.746598       | 1.0363 | 0.3563   |
|   | Unit/ward | 3           | 3  | 35.147890      | 5.1156 | 0.0019*  |
| PN: Certainty-Provisionalism<br>Q57-62    | Age       | 4           | 4  | 13.133060      | 1.5890 | 0.1777   |
|   | Tenure    | 3           | 3  | 4.943202       | 0.7975 | 0.4963   |
|   | Language  | 3           | 3  | 4.130570       | 0.6664 | 0.5734   |
|   | Gender    | 1           | 1  | 0.560267       | 0.2712 | 0.6030   |
|   | Hospital  | 2           | 2  | 4.942823       | 1.1961 | 0.3041   |
|   | Unit/ward | 3           | 3  | 20.886383      | 3.3695 | 0.0192*  |
| OM: Evaluation-Description<br>Q6-10       | Age       | 4           | 4  | 8.124462       | 1.1436 | 0.3365   |
|   | Tenure    | 3           | 3  | 5.242453       | 0.9839 | 0.4009   |
|   | Language  | 3           | 3  | 11.551519      | 2.1679 | 0.0923   |
|   | Gender    | 1           | 1  | 0.096487       | 0.0543 | 0.8159   |
|   | Hospital  | 2           | 2  | 3.532513       | 0.9944 | 0.3714   |
|   | Unit/ward | 3           | 3  | 23.995053      | 4.5033 | 0.0042*  |
| OM: Control-Problem Orientation<br>17-22  | Age       | 4           | 4  | 9.802766       | 1.0326 | 0.3909   |
|   | Tenure    | 3           | 3  | 6.779968       | 0.9523 | 0.4159   |
|   | Language  | 3           | 3  | 3.275337       | 0.4600 | 0.7105   |
|   | Gender    | 1           | 1  | 2.046399       | 0.8623 | 0.3540   |
|   | Hospital  | 2           | 2  | 6.781968       | 1.4288 | 0.2415   |
|   | Unit/ward | 3           | 3  | 15.950370      | 2.2402 | 0.0841   |
| OM: Strategy-Spontaneity<br>Q29-34        | Age       | 4           | 4  | 13.041851      | 1.1550 | 0.3313   |
|   | Tenure    | 3           | 3  | 7.177992       | 0.8476 | 0.4690   |
|   | Language  | 3           | 3  | 10.465629      | 1.2358 | 0.2972   |
|   | Gender    | 1           | 1  | 3.453703       | 1.2235 | 0.2697   |
|   | Hospital  | 2           | 2  | 2.638024       | 0.4673 | 0.6273   |
|   | Unit/ward | 3           | 3  | 29.417141      | 3.4736 | 0.0167*  |
| OM: Neutrality-Empathy<br>Q40-44          | Age       | 4           | 4  | 13.075354      | 1.2187 | 0.3033   |
|   | Tenure    | 3           | 3  | 2.059194       | 0.2559 | 0.8571   |
|   | Language  | 3           | 3  | 11.683131      | 1.4519 | 0.2282   |
|   | Gender    | 1           | 1  | 2.286579       | 0.8525 | 0.3567   |
|   | Hospital  | 2           | 2  | 4.232361       | 0.7890 | 0.4554   |
|   | Unit/ward | 3           | 3  | 30.628762      | 3.8063 | 0.0107*  |
| OM: Superiority-Equality<br>Q51-56        | Age       | 4           | 4  | 17.122443      | 1.9172 | 0.1080   |
|   | Tenure    | 3           | 3  | 3.864727       | 0.5770 | 0.6306   |
|   | Language  | 3           | 3  | 3.592231       | 0.5363 | 0.6578   |
|   | Gender    | 1           | 1  | 0.024846       | 0.0111 | 0.9161   |
|   | Hospital  | 2           | 2  | 5.991526       | 1.3417 | 0.2633   |
|   | Unit/ward | 3           | 3  | 33.226416      | 4.9604 | 0.0023*  |
| OM: Certainty-Provisionalism<br>Q63-68    | Age       | 4           | 4  | 15.997716      | 1.4647 | 0.2134   |
|   | Tenure    | 3           | 3  | 5.752999       | 0.7023 | 0.5514   |
|   | Language  | 3           | 3  | 1.549464       | 0.1892 | 0.9037   |
|   | Gender    | 1           | 1  | 0.068580       | 0.0251 | 0.8742   |
|   | Hospital  | 2           | 2  | 4.341108       | 0.7949 | 0.4527   |
|   | Unit/ward | 3           | 3  | 26.734375      | 3.2636 | 0.0220*  |

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OM = OPERATIONAL MANAGER