

Follower attribution analysis
in an
Air Traffic Control environment:
an unconventional leadership
challenge

Research report

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Abstract

Purpose: The purpose of this research is to ascertain the relationship between *the difference in the way leaders think they are being perceived by their followers and how they are actually being perceived*, and *the level of morale of such followers*. It was completed in an operational Air Traffic Control (ATC) centre in Johannesburg, South Africa, and focused on four middle managers and their team of ATC followers. The process was viewed from a followership perspective, and the Attribution Theory of leadership applied to study follower perceptions of leader attributions.

Methodology: A parallel-convergent mixed-method approach was utilised, with primary quantitative and qualitative data collected concurrently from leaders and followers in interview and survey format. Results were merged using triangulation, before being auto-ethnographically interpreted.

Scope and Limitations: The study researched individual ATC middle managers and their followers at the researched ATC centre, resulting in a scope that includes four leaders and 105 followers. It did not include any other staff as part of the research, and focused on a specific set of people within the researched centre. The study was limited to the researched ATC centre at the researched company only. The low morale in the researched centre could be due to various other causes such as working conditions, unhappiness with upper management (not middle management), compensational disagreements and company policy issues. Whilst excluded in this study, they are conceded and suggested for future research.

Originality and Value: This research is original, and will add value to the researched company by enabling them to understand and address one of the causes for low morale in the researched centre. Its value to the body of knowledge resides therein that it is the only research to date in the narrow field of followership and the Attribution Theory of leadership combined and applied in the South African ATC leadership environment.

Findings and Recommendations: Research data points to a definite discrepancy between leader perception of follower attributions and actual follower attributions. Additionally, it proves that in this specific setting the more negative this discrepancy, the lower follower morale becomes. ATNS should consider remedial training for affected managers to develop deficient attributions and sufficiently equip them to deal with the low morale problem.

Keywords: Attribution Theory of Leadership, Followership, Air Traffic Control, South Africa, morale, leadership perception.

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List of acronyms and abbreviations

ACCCEW	Area Central/East/West
ACCNS	Area North/South
AI	Appreciative Inquiry
ANSP	Air Navigation Service Provider
APP	Approach
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer
ATNS	Air Traffic and Navigational Services SOC Limited
CAMU	Central Airspace Management Unit
Centre	Air Traffic Control Operational Unit (Branch)
EP	Employee Profile
FR	Follower Rating
LR	Leader Rating
LSI	Leadership Style Inventory
LSI_D	Leadership Style Inventory Rating Discrepancy
Pool	Air Traffic Control Sector Sub-Unit or Team
PW	Pool Wellbeing
SASAR	South African Search and Rescue
SOC	State-Owned Company
TWR	Tower
VAR	Variable

Declaration

I hereby declare that **Follower Attribution Analysis in an Air Traffic Control Environment: An Unconventional Leadership Challenge** represents my own work, that all the sources I have used have been indicated and acknowledged as complete references, and that it has not been submitted before to any other institution for any other purpose.

Lonell Coetzee

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CHAPTER 1: ORIENTATION

This research revolves around comparing the follower attributions of leaders of a sample of Air Traffic Control Officers (ATCOs) to the beliefs of such leaders regarding how their followers perceive them, and analysing the differences to evaluate the effectiveness of the leadership style and its effect on morale. The research was conducted at the OR Tambo International Airport Air Traffic Control Centre (hereafter referred to as the researched centre), an operational branch of Air Traffic Navigational Services SOC Limited (the researched company, hereafter referred to as ATNS).

Chapter 1 presents the background to the study, followed by the research objectives, problem statement, research and definitions. A discussion on the context of the research is next, followed by an examination of the scope and delimitation of the research as well as the rationale behind the study. Finally, the significance of the research is considered before the chapter is concluded by outlining the chapters that follow.

1.1 Introduction

Historically, the primary focus of leadership has been on the leaders themselves (Burgstad, Thach, Thompson & Morris, 2006). However, it is becoming ever more apparent that *followers* form a major part of leadership – their absence would effectively render any form of leadership obsolete. The Attribution Theory of Leadership, as developed by Calder (1977) states that followers will appraise the abilities of leaders by observing how leaders conduct themselves, thus assigning certain *follower attributions* to the leader.

In the author's experience as an ATCO, this phenomenon is apparent within the aviation industry - more specifically the safety-critical air traffic control (ATC) environment. The mere fact that a person qualifies as an ATCO implies an exceptionally strong personality and high level of self-confidence, attributes intrinsic to the job (Dean, Russell and Farmer, 2002) and described by Friedman and Rosenman (1974) as a 'Type A' personality. Consequently, the vast majority of South African Air ATC managers, mostly promoted to such positions from being ATCOs themselves, fall desperately short when their leadership abilities are assessed by their followers – it is the exception to the rule when someone emerges who succeeds with inspirational leadership. The author opines that this is potentially exacerbated by either a lack of tertiary qualifications, the challenges presented by leading a group of followers with the intelligence, skill and sheer self-confidence level of ATCOs, or both.

At the researched centre a particularly low level of morale was evident amongst the controllers. Morale is defined by the Oxford English Dictionary (1995) as ‘the confidence, enthusiasm and discipline of a person or group at a particular time’. The researcher is an active and valid ATCO at the researched centre and determined the existence of low morale levels within said centre auto-ethnographically through discussion and interaction with colleagues over a period of 12 years leading up to this research. This research aims to establish the reasons for the low levels of morale by:

1. Focusing on the followers – posing the same set of questions to both followers and leaders.
2. Analysing the similarities and differences in the answers obtained.
3. Providing feedback and enlightening leaders on how the perceptions of their followers differ from how they believe they are operating in terms of their leadership style.
4. Employing established methodologies (such as the Peter Principle (Peter and Hull, 1969) and Dunning-Kruger effect (Dunning, 2011)) to explain appropriate phenomenological aspects.

Furthermore, the research aims at providing guidelines to ameliorate the situation and thereby benefit the researched company. In conclusion, the proposed research aims to explain the effect of differences in leader perceptions of follower attributions and actual follower attributions of their leader on follower morale, and to provide recommendations for the researched company to consider in improving the situation.

1.2 Research objectives

The research has the following objectives:

1. To provide ATC managers in the researched company centre with unbiased feedback regarding the way in which their followers perceive their leadership style by comparing *follower attributions* to *leader perceptions of follower attributions*.
2. To suggest possible causes for the differences (if any) between how these ATC managers think they are being perceived by their followers and how they are actually being perceived, thereby allowing these to be eradicated and improving follower morale.

1.3 Problem statement

The research problem for this study, rooted in the attribution theory of leadership, is defined as follows:

1.3.1 Sub-problem 1

To what extent does the way in which leaders think that their followers perceive them differ from how they are actually perceived?

1.3.2 Sub-problem 2

If a discrepancy between follower perceptions and leader opinions of follower perceptions exists, what is the relationship between this discrepancy and the level of follower morale?

1.4 Research questions

1.4.1 Research question 1

Are the opinions of the various pool managers as on how their followers perceive them consistent with how their followers actually perceive them in the researched company centre?

1.4.2 Research question 2

If these opinions are not consistent, what are the differences and what effect do they have on the perceived level of morale within the pool?

1.5 Definitions

1.5.1 Followership

The term 'followership', as utilised in this research, implies the activity of individuals who are subservient to leaders in an organisation. Further, it implies individuals who co-participate and cooperate in actions in conjunction with the leader to achieve organisational goals and objectives (Baker and Gerlowski, 2007). Followership is discussed in more detail in section 2.4.1.

1.5.2 The Attribution Theory of Leadership

The Attribution Theory of Leadership was developed by Heider (1958), and implies that individuals make attributions regarding the world around them and the people with whom they interact. The Oxford Dictionary (1995) defines the word attribution as 'the action of regarding a quality or feature as characteristic of or possessed by a person or thing'. This theory is clarified in section 2.4.1.

1.6 Scope and delimitation

The researched centre consists of four 'pools' varying between 20 and 30 followers at any given time, each headed by a middle manager or 'pool manager' as it is known within ATNS. Pool staff numbers fluctuate continually due to various factors such as for example extended

absence for training purposes, or commencement of training in another discipline. In the company context, a branch is referred to as a 'centre' and consists of the actual ATC unit at a particular airfield – the place from whence that airfield's airspace is controlled. The researched centre is by far the largest in the company, employing the largest number of people and producing the largest revenue (ATNS, 2016b). It resides within the organisational hierarchy of ATNS as illustrated in Figure 1:

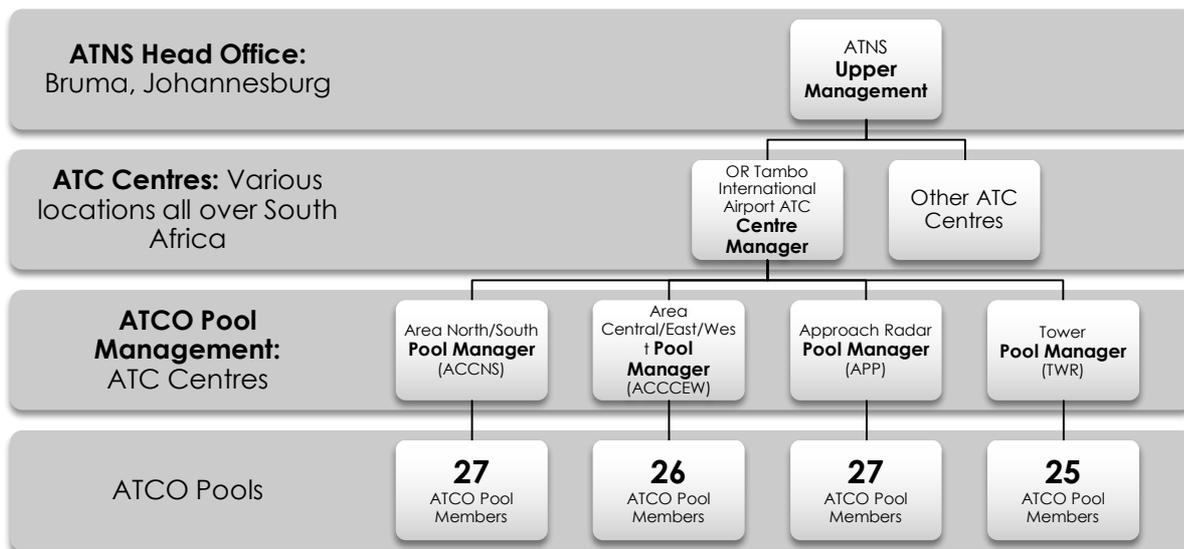


Figure 1: Organisational Layout Surrounding the Researched Population

As depicted in Figure 1, each centre consists of various 'pools' of ATCOs, which control different parts of the airspace, and each pool is headed by a pool manager. Upper management is located at a separate Head Office, with a Centre Manager leading all the pool managers at centre level. Every centre in the country works on the same principle, making the research repeatable.

The study researches each ATC pool manager and his or her pool of followers at the researched centre separately, resulting in a scope that includes four leaders and 105 followers as part of the research. It does not include non-ATCO staff as part of the research, and as such focuses on a very specific set of people within the researched centre.

1.7 Rationale behind the study

As previously noted, the researched centre had been experiencing a low level of morale amongst the ATCO staff, possibly at least partially as a result of a serious disconnect between pool management and ATCO staff. Whilst this disconnect could be attributed to various reasons, it is the researcher's opinion that a study into the differences between what leaders believe their followers think of them, and what their followers actually think, would conceivably

explain the abyss between middle management and staff, and hopefully assist the company to find the cause of the problem.

1.8 Significance of the study

The significance of the study resides in the fact that it would contribute to the very limited body of knowledge regarding leadership in a South African ATC environment. Whilst leadership in general is one of the most researched and documented subjects of all, the researcher was unable to find more than a single scholarly publication regarding leadership in a South African ATC environment. Considering the A-type personality prevalence in this industry and its influence on the type of leadership required, research and intervention would seem long overdue. This research therefore attempts to add substantial academic as well as practical value by appending the results of this research to the body of knowledge.

1.9 Outline of the research report

This research report is divided into six chapters, structured as follows:

Chapter 1 provides an introduction and background to the study, and briefly reviews the purpose, objectives, problem statements, definitions, methodology, delimitations and importance of the study.

Chapter 2 presents a brief background of the researched centre, before considering the origin of and contributing factors to the research problem. Finally, the theoretical paradigms and methodologies applied in the research are reviewed and explained.

Chapter 3 offers a critical review and dissemination of the most significantly relevant and readily available literature surrounding the research area to provide a foundation for appending the research to the body of knowledge.

Chapter 4 provides a comprehensive discussion and explanation of the research design and methodology.

Chapter 5 presents a statistical analysis and illustration of the obtained research results, and provides richness of meaning by using established methodologies to qualitatively analyse findings.

Chapter 6 presents a final overview of the study with reference to the total research process: quantitative and qualitative research findings are triangulated, examined and contextualised anent the literature review with conclusions and consequent recommendations.

1.10 Concluding perspective

This chapter aimed to orientate the reader regarding the aim and scope of this research. It commenced with a general explanation of the research, followed by a description of the research objectives, problem statement and research questions. The scope and definition of the study was examined, after which the rationale behind the study, as well as the envisaged significance were detailed. Lastly, a chapter outline of the report was provided. In the next chapter, the foundation and theoretical context of the research will be explained, as well as a brief background to the researched centre and the origin of the research problem discussed.

CHAPTER 2: FOUNDATION AND THEORETICAL CONTEXT

2.1 Introduction

All research requires a bedrock for its inquest, afforded by scientific paradigms and the application of theoretical frameworks in the context of the research (Gelo, Braakman & Benetka, 2008). Additionally, it is good research practice to ascertain the personal, ontological, methodological and epistemological alignment of the researcher before commencing the research (Guba and Lincoln, 2000).

In an environment as complex as that of ATC, it is useful to commence any report with a clarification of concepts that may not be familiar to readers unacquainted with the industry. To this end, this chapter commences with a brief background of the researched centre, explaining how it operates and how its functions interconnect. The chapter continues with an auto-ethnographical discussion of the origin of the research problem before the factors that contributed to this problem are unpacked and theoretical paradigms and methodologies used in this research are explained.

2.2 ATNS OR Tambo International Airport ATC centre: a brief enumeration

ATNS is a state-owned, limited liability company that provides air traffic, navigation, training and associated services within South Africa and the Southern parts of both the Indian and Atlantic Oceans, and is as such responsible for approximately 10% of the world's airspace (ATNS, 2016b). Its operational ATC centre at OR Tambo International Airport is considered to be the national hub of its operations, accounting for the greatest part of its operational revenue and employing the largest amount of staff (ATNS, 2016a).

Every ATC Centre has various divisions, with numerous staff fulfilling non-ATC related functions, as well as ATC-related support functions. Only the ATCO staff and their direct pool managers are included in this research, and Figure 2 illustrates how the researched population (emphasised in dark grey) forms part of the total staff compliment of the OR Tambo International Airport ATC Centre:

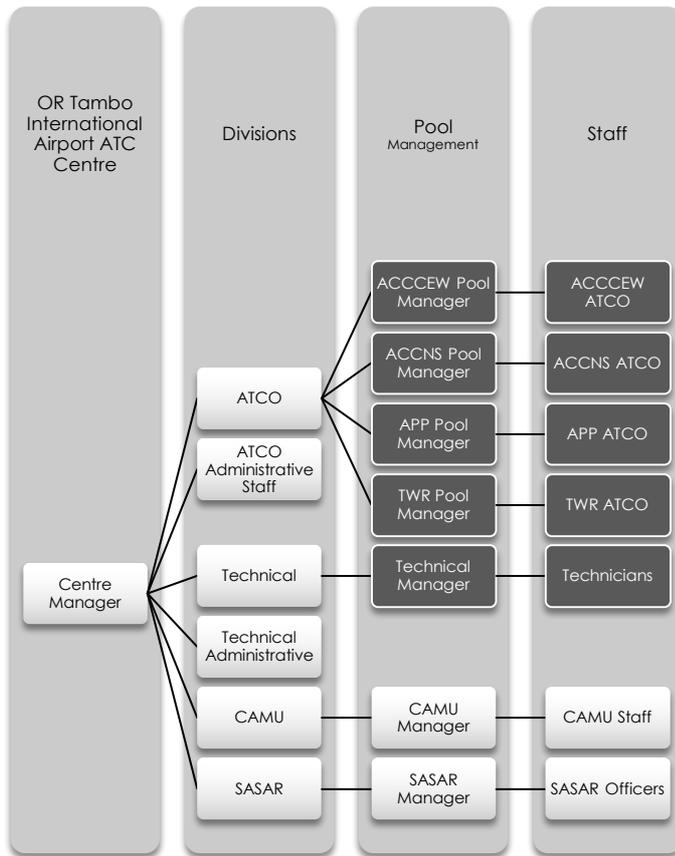


Figure 2: Researched Centre Hierarchical Layout

As Figure 2 explains, the workforce at the researched centre consists of six sets of staff: operational ATCOs, operational administrative staff, central airspace management unit (CAMU) staff, technical staff, technical administrative staff and South African Search and Rescue (SASAR) staff; four sets of middle-management staff: pool managers, a CAMU manager, SASAR manager and technical manager; and a centre manager. There are four operational ATCO pools, i.e. Tower (TWR), Approach (APP), Area Central/East/West (ACCCEW) and Area North/South (ACCNS), each headed by a pool manager.

2.3 Origin of the research problem and contributing factors

The researcher spends her daily working life participating in and contributing to the researched centre as an active and current ATCO, and as such has experienced the research problem developing slowly over the course of several years. Over the past 10 years, the researched centre has regressed slowly from a place with high to average morale and unity, (with the few odd negative people found in every working situation), to a toxic environment with virtually no positivity to be found amongst ATCOs, and morale at an all-time low.

When considering possible causes and contributing factors for the research problem, the following issues were experientially identified:

1. Centre management had considerable experience and had been in their roles for quite some time. There was, however, much stagnation prevalent as problems were not being addressed despite the evident need for change and progress.
2. The centre subsequently experienced an extended period without steady management while the centre manager and one of the senior pool managers were suspended pending disciplinary action. During this time there was a lack of visible and stable leadership, with acting managers rotating on short intervals.
3. In this environment nobody truly took responsibility for taking care of staff and their needs, and no tangible discipline was enforced. There was a limited period where one of the acting managers attempted (and almost succeeded) to make a difference, however his tenure was too short to have had any lasting effect.
4. Senior management at head office maintained a distinct lack of communication and even a sense of secrecy regarding the progress and outcome of the disciplinary action, resulting in rumour-mongering and growing negativity and dissatisfaction amongst staff.
5. As the communication gap between head office and the researched centre widened, the slowly increasing uncertainty and negativity went unnoticed, whilst nobody took charge of the problem. The situation escalated to a point where it would be extremely difficult to remedy.
6. The pool managers were caught in the middle of this developing crisis, and all of them dealt with it in their own individual ways – some more successfully than others.

Whilst this is the researcher's own interpretation of the situation, care has been taken to eliminate as much bias as possible. To do so, the researcher distributed an additional questionnaire subsequent to data collection and analysis by leaving 30 copies in the ATCO sign-on hall for anyone interested to complete. It is attached as Appendix C. Fifteen responses were received in a matter of three days, and the factors identified, along with the response frequency, are listed below:

Table 1: Listed Causes of Pool Wellbeing (PW) Factors by ATCO Staff

Factor	Frequency
Lack of leadership	13
Feeling of being ignored	11
Unfavourable working conditions	10
Lack of effective communication	9
Lack of recognition for good performance or extra effort	9
Staff feeling generally unappreciated	9
Archaic management styles	9
Increased difficulty to qualify for bonuses	6
Inadequate staffing levels	6
Management being frequently absent from the premises	5
Loss of faith in management, feeling that they drive own agendas	5
Salary stagnation	5
Past instability of centre management	4
Unsuitable people appointed to inappropriate positions	4
Lack of change management	4
Inconsistent application of rules for operational and non-operational staff	4

It is apparent from the items listed in Table 1 that the lingering negative issues in the researched centre are pervasive and requires urgent attention. It is necessary to state that at the time of writing a new centre manager was appointed to the researched centre. One comment from an ATCO on the questionnaire is worth mentioning: “*Hard to be positive on a sinking ship*”. This research aims to aid the effort required for the challenging task that the new centre manager faced in rectifying the situation.

2.4 Theoretical paradigms, methodologies and principles

Two established theoretical paradigms (Followership and the Attribution Theory of Leadership) form the basis for this research, and various methodologies are utilised to apply these paradigms.

2.4.1 Theoretical paradigms

A paradigm can be described as a set of basic beliefs that deal with first principles, and represents a 'world view' for an individual that defines his or her world, place in this world, surroundings within such a world, and relationship with it. In research, this manifests as the most current and valid view that proponents have been able to devise of a certain subject, based on their interpretation of ontological, epistemological, and methodological questions raised by such a subject (Guba and Lincoln, 2000). It is therefore vital that any research be grounded in accepted theoretical paradigms, to ensure both its currency and credibility (Hofstee, 2011). This section discusses the two theoretical paradigms on which this research is based: Followership, and the Attribution Theory of Leadership.

a) Followership

Much like leadership, there is no single definition of followership (Singh and Bodhanya, 2013). Followership consists of much more than a mere passive surrender to a leader; it implies a willingness to follow a leader to achieve organisational or personal goals (Brown, 2003). Leadership and followership are inherently linked, and do not exist as isolated entities. Individuals often have to switch between leader and follower roles in their daily working environments, which implies that one cannot exist without the other (Stech, 2008; Kupers and Weibler, 2008; Agho, 2009). Singh and Bodhanya (2013) posit that followers are not static entities that simply take and follow orders from their leaders, but are in fact intellectual, multi-faceted and ever-changing organisms that play a very significant role in the operation of the modern organisation.

Changes to the modern work environment places renewed emphasis on followers, and the customary *power distance* between followers and their leaders has gradually eroded due to simpler access to information and ever-expanding social networks (Bagraim, Cunningham, Pieterse-Landman, Potgieter & Viedge, 2011). It is therefore crucial that any organisational problem be viewed not only from the perspective of its leadership, but also from that of followers, and this ties in favourably with the research topic.

b) Attribution Theory of Leadership

The Attribution Theory of Leadership can be traced to the work of Heider (1958), Kelley (1973) and Weiner (1986), and stipulates that attributions are individuals' way of explaining the causes of successes or failures in their lives. In an organisational context, attributions are often the key arbitrating means through which leaders and followers appraise each

other's behaviours to respond appropriately (Chen and Van Velsor, 1996). Attributional analysis is at the very core of organisational observation (Weiner, 1986), and some attributional researchers argue that leadership cannot be taught as a skill, but that it is indeed perceptions and attributions of leadership that determine its level of success (McElroy, 1982).

Lakshman (2008) notes that Attributional Leadership Theory is best utilised in an organisational research context by using both qualitative and quantitative methods, and that both leaders and followers could be surveyed as an extension of this by using questionnaires for followers and in-depth interviews in naturalistic settings for leaders. By using both methods, rich information can be yielded on information processing and attribution allocation of leaders and followers (Lakshman, 2008), and its effect on leadership style effectiveness, which is the research objective.

2.4.2 Methodologies and principles

This research used several analytical methodologies and applied certain proven principles to elucidate the application of the chosen theoretical paradigms. This section specifies and explains the Appreciative Inquiry (AI) and Auto-Ethnography methodologies, as well as the significance of the Peter Principle and Dunning-Kruger Effect, with a view to creating a context for their application in the research findings.

a) Appreciative Inquiry (AI)

Appreciative inquiry (AI) refers firstly to the process of seeing what is often difficult to see by sharing different points of view, and secondly using positive language to unleash and harness the positive energy of thought to effectively solve organisational problems (Viljoen, 2015). AI aims at expanding the theoretical knowledge of consequence and as such is considered to be an alternate method of problem-solving by providing a medium for social invention (French and Bell, 1999). The use of the term 'appreciative' emphasises the notion that an item 'appreciates' when it increases in value. 'Inquiry' implies the process of seeking to understand by means of the asking of questions. Therefore, AI is analysis that focuses on the positive and life-giving forces within a system, and ways of multiplying these forces (Watkins, Mohr & Kelly, 2011).

The 4-D Cycle of AI developed by Cooperrider, Wheatly and Stravros (2003) presents an accurate visual description of the process of AI as illustrated in Figure 3:

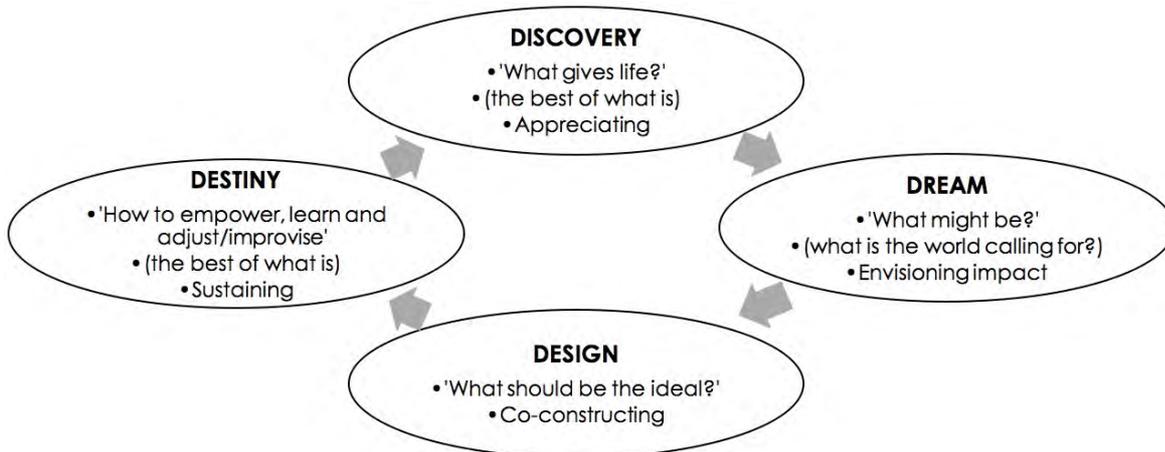


Figure 3: 4-D process of appreciative inquiry (Cooperrider, *et al.*, 2003)

Figure 3 explains that the process of AI starts with a 'Discovery' of what is, appreciates its worth and celebrates its virtuous qualities. It then 'Dreams' of what such a state of being could become in an ideal world, 'Designs' its route to reaching this state and provides it with the 'Destiny' to achieve this purpose by empowering its course, adjusting and improvising by learning from failures and sustaining its ability to remain in this ideal state. This implies a restart of the process when the ideal state of being moves into the future again, by virtue of the current state becoming outdated or less than ideal (Cooperrider *et al.*, 2003).

According to French and Bell (1999), there are several differences between the AI way of solving problems and the traditional organisational methodology, summarised in Table 2:

Table 2: Appreciative Inquiry vs Organisational Research (adapted from (French and Bell, 1999))

PHASE	TYPICAL RESEARCH	AI RESEARCH
Data collected	Management, small sample	All employees
Data reported to	Management, small sample	Everybody who participated
Implications of data	Consultant to advise management	Everybody works on implications
Third party interventions	Consultant to facilitate interventions	Solutions co-created by client and consultant and implemented/facilitated
Positive extent of change	Low	High

As Table 2 illustrates, AI as a tool can add immense value to any organisational research and is much-needed, especially in the extremely demographically and ethnically diverse South African environment (Viljoen, 2015).

b) Auto-ethnography

Purely scientific quantitative research often neglects to consider the innumerable ways in which concepts such as the researcher's personal experience influence the research process (Ellis, Adams & Bochner, 2011). Auto-ethnography is an attempt to address this

apparent shortcoming by seeking to describe and systematically analyse personal encounters to fully understand cultural occurrences in qualitative research (Ellis and Bochner, 2000). Auto-ethnography is therefore an approach that recognises and accommodates partiality, emotionality as well as the researcher's impact on the research, instead of supposing that it does not occur. When researchers write auto-ethnographically, they retrospectively and selectively write about events that originate from, or are made possible by, possessing a specific cultural identity or by being part of a culture (Ellis *et al.*, 2011). Essentially, the story of the research is related by using personal experience to illustrate cultural nuances to outsiders. To make such stories relevant and scientifically acceptable, they have to be contrasted to existing research and analysed accordingly. Whilst there are various types of auto-ethnography, this research focuses on reflexive, dyadic interviews, as well as the emotional dynamics and interactively produced meanings of interview-based research (Ellis, 2004). Whilst the focus is on the interviewees and their stories, the thoughts, words and feelings of the interviewer (such as knowledge of the subject discussed and emotional responses to the interview) are also taken into account, thus adding context and layers to the story being told.

c) The Peter Principle

The Peter Principle is a powerful hypothesis which states that 'in a hierarchy, individuals tend to rise to their levels of incompetence' (Peter and Hull, 1969). According to this principle, every employee has a certain finite amount of competency. This implies that every incumbent in a hierarchy will at some point or another reach a level of promotion that exceeds his or her competency, thereby rendering them both incapable and inefficient. Peter (1985) expanded on his principle by noting that when bureaucrats are promoted to their level of incompetence they cease to do anything useful, but are still able to produce masses of meaningless forms and procedures that ensnare the rest in a tangle of paperwork, making lives more difficult by increasing the bureaucracy required to complete even the most menial tasks. Additionally, he notes a significant difference between being in charge and being a leader, and whilst many are called leaders by virtue of being in a managerial position, this purely denotes position and not leadership ability. Peter also posits that leaders have unique leadership ability and the higher they rise, the further they see, more they know, more original they become and the less likely they are to copy what others are doing. It is clear from recent research (Romaine, 2014; Brilon, 2015) that this principle, though dated, applies no less now than when postulated in 1969.

d) The Dunning-Kruger effect

The Dunning-Kruger effect was developed by David Dunning and Justin Kruger, who conducted research at Cornell University in 1999 (Kruger and Dunning, 1999). It postulates the theory that people who are incompetent in a certain area will more often than not be unaware of their incompetence and even over-estimate their ability to the extent that they see themselves as extraordinarily competent. This is as a result of the double burden of incompetence (Dunning, 2011): Firstly they repeat mistakes because of their deficit in expertise, but secondly this very same deficit renders them incapable of recognising the fact that they are making mistakes when others succeed. As a result of this, poor performers would often make mistakes without realising it, which in turn leads them to believe that they are doing reasonably well when the complete opposite is actually true.

This phenomenon is a consequence of the reality that evaluating the correctness of an action draws on the exact same expertise as what is required to complete the action in the first place (Everson and Tobias, 1998). According to Schlösser, Dunning, Johnson and Kruger (2013), one specific intervention has been demonstrated to make participants more accurate in their evaluation of their own performance: training them to rid them of cavities and degeneracies in their expertise. When people are trained in logical reasoning, they become more adept at gauging their skill level as well as at realising just how deprived it was before the commencement of such training.

2.5 Concluding perspective

This chapter aimed to clarify the foundation of and theoretical paradigms applied in this research. The researched centre background and the origin of the research problem were explained, as well as possible contributing problems. An overview of the academic models in which the research was rooted was provided, followed by the methodologies applied to analyse the obtained research data. Chapter 3 provides a thorough review of the literature available concerning the research topic.

CHAPTER 3: LITERATURE REVIEW

3.1 Introduction

A literature review affords both an enumeration and amalgamation of relevant existing knowledge and research pertaining to a specific research problem. It provides occasion to study recent and current appropriate material, analytically appraise preceding studies and findings as well as refer to key pioneering works, and in so doing identify possible deficiencies as well as support the need for further study, thus setting a theoretical framework for the research problem (McMillan and Schumacher, 2001). In the words of Confucius 'A man who reviews the old so as to find out the new is qualified to teach others' (Ames and Rosement, 1998:23).

The research problem of this study incorporates three elements, aiming to combine *(i) followership as an autonomous field of study* with the *(ii) Attribution Theory of Leadership* as applied in a *(iii) South African ATC leadership* context.

This chapter offers a critical review of the relevant available literature on all three these elements individually, before appraising available literature firstly when combined, and secondly when this combined field is applied in a South African Air Traffic Control environment.

3.2 Followership as an autonomous field of study

Whilst leadership and leadership theory is one of the most widely researched topics, followers and followership have been notably neglected, with a lack of theory, research and publications on the topic. Singh and Bodhanya (2013:499) laments the 'lack of studies pertaining to the phenomenon of followership itself', and Feldman (2016) notes that followership is a new field of research, which severely limits the availability of completed research on the topic. Uhl-Bien, Riggio, Lowe and Carsten (2014) suggest that even though it logically follows that there can be no leadership without followers, followers are very often completely omitted from the leadership equation, and that followership signifies a readiness to submit to another person in some way. This is described as yielding a leader identity to another and claiming a follower identity for oneself (DeRue and Ashford, 2010). Singh and Bodhanya (2013) state that while leaders and leadership are an important part of organisational life, their very existence is impossible without followers. Uhl-Bien and Pillay (2007:189) state that 'if leadership involves actively influencing others, then followership involves allowing oneself to be influenced'.

Despite the neglect of followership as an independent subject, there were clues even in early pioneering leadership literature that followership is indeed an important component of leadership. Kotter (1996) refers to the fact that he sees the organisation of the future relying heavily on flatter hierarchies, less bureaucracy and constant employee empowerment. He further states that many of the same organisational qualities required to develop leadership are also needed to empower employees. Similarly, Fulmer (1983:200) concludes that 'it is a wise boss that lets employees have their way', and that 'the concept of authority appears to be in for some definite changes'. Gellerman (1968) notes that decision making should be more widely distributed, and that this will severely impact management jobs as it was known at the time. Allen (1964:6) approaches leadership from the perspective of followers, as 'the groups being led are the most important force in determining what kind of leadership can be successful' and 'if we approach leadership from this point of view, many of the questions that have perplexed us in the past will begin to resolve themselves'.

Rupert (1967) cites many references by prominent world leaders of the time regarding followership being an essential component of superior leadership, a notable few are quoted below (translated from Afrikaans):

The truly successful leader is one who can persuade, thus giving to subordinates the feeling that they have participated in the plan that they are later expected to carry out.

General Dwight D. Eisenhower (p. 38)

A good leader is not only a good superior, but a good colleague.

Dr Hermann Abs (p. 146)

In essence then, a good leader is one with his people, understands them as human beings and is prepared to always consider them, with a genuine concern for people at the bottom; for their welfare now and in the future, for their progress and opportunities to better themselves, coupled with a sincere appreciation of what they do to the best of their abilities.

Mr R.A. Irish, O.B.E (p. 169)

The leader believes strongly in those that he leads. This belief determines the level of his appreciation of his followers as it is revealed to them in his relationship with them. This increases the strength of mutual loyalty and alacrity.

Dr Frikkie Meyer (p. 183)

The successful manager of the future will be judged by what his followers do rather than by his own personality traits.

George S. Odiorne (p. 226)

Meindl *et al.* (1985:100) refer to the Western culture's focus on primarily the leader as the *Romance of Leadership*, and describe leadership as 'a social construction created by

followers'. Additionally, Hollander (1992a; 1992b) concedes that followers' estimation of their leader forms a pivotal part of the leader-follower relationship.

Most research on leadership acknowledges followership in some way, but the focus on followership as a research area in its own right did not occur until fairly recently. Even though a number of models exist that detail the nature of leadership, there are no formal models in existence for followership (Vecchio, 2002). Therefore, as leaders only contribute a maximum of 20% to organisational success, with followers contributing the remaining 80%, active research in this domain is urgently required (Feldman, 2016).

Followership research can be divided into two distinct approaches: **role-based** (Katz and Kahn, 1978), in which followership is seen as a role played by individuals occupying a formal or informal position or rank (e.g. a 'follower' in a leader-follower relationship) and **constructionist** (Fairhurst and Grant, 2010), in which joint acts of leading and following co-create leadership as a result of relational followership interaction (Shamir, 2012). The latter allows us to establish that leaders are not always leading, they also participate in 'following behaviours' by deferring to subordinates (Larsson and Lundholm, 2013). Additionally, the concept of followers holding different types of role orientations is described by Carsten, Uhl-Bien, West, Patera and McGregor (2010).

Grant and Ashford (2008) classify followership behaviours, such as obedience and subordination, resistance and proactive behaviours. Hamel (2000) posits that follower coalition can be powerful enough to transform individual authority to collective authority in any organisation. Collinson (2006) explores the significance of comprehending follower identities through the use of post-structuralist examination, and describes three types of follower identities: the conformist self, the resistant self and the dramaturgical self. Greyvenstein and Celliers (2012) conducted research which concluded that leadership tends to focus more on business issues than follower matters, which leads to followers feeling disenfranchised, de-authorised and disregarded.

Followership is an exciting field with many opportunities for future research, but as Uhl-Bien *et al.* (2014:90) cautions: 'Followership is not a mirror of leadership theory – it requires new ways of thinking, new types of theorising, and operationalising and testing different kinds of variables'. In a recent *Leadership Quarterly* review of followership literature, Tee, Paulsen and Ashkanasy (2013) note the perceptions of leaders regarding their followers as well as follower perception formation as important avenues for further research and theorising.

Similarly, Feldman (2016:12) recommends that 'a pilot study making use of qualitative and mixed method research can be launched in South Africa to test follower experiences of leader behaviour in a setting where follower-leader dynamics are critical', which is exactly what this research aims to accomplish.

3.3 Attribution Theory of Leadership

The Attribution Theory of Leadership can be traced to the work of Heider (1958), who posited that attributions are the outcome of the primary intellectual means by which people determine cause and effect to solve problems and become more effective in their exchanges with their surroundings. Within Heider's original framework, an attribution is defined as a fundamental designation for a positive or negative result.

Heider's work was expanded by Kelley (1971; 1973) and Weiner (1972; 1986), Kelley identifies the types of information people use to make attributions, namely consensus, distinctiveness and consistency information, while Weiner focuses on the consequences of attributions, discussing how the dimensions (controllability, locus of causality and stability) of attributional explanations (ability, effort, task difficulty and luck) affect emotions and behaviour. Green and Mitchell (1979) propose a model depicting how member behaviour leads to informational prompts that influence leader attributions, which in turn influence leader behaviours directed towards followers.

Various criticisms of the Attribution Theory of Leadership followed, the most notable being by Mitchell criticising himself (Mitchell, 1982), and this caused a temporary pause in research in the field. The steady stream of research that resumed in 1985 consisted of several different approaches, including:

1. **Biases:** The region of attributional biases has received significant emphasis in attributional research. It includes concepts such as the self-serving bias (Zuckerman, 1979), the actor-observer bias (Bernardin, 1989), and the false consensus bias (Kreuger and Clement, 1994).
2. **Attribution Style:** Attribution style is the propensity to make attributions that are analogous across circumstances, the most well-researched instances being optimistic and pessimistic attribution styles (Kent and Martinko, 1995).
3. **Demographic Variables:** Gender, age and culture all seem to be connected to attributional propensities, and can as a consequence be regarded as substitutions for the attributional styles of both leaders and followers (Martinko, Harvey & Douglas, 2007).

4. **Personality Traits:** As indicated by significant research (Bono and Judge, 2004), personality traits are meaningfully connected to leadership development and success. Constructs such as locus of control, self-efficacy and negative affectivity all have significant relationships with attribution processes (Cable and Judge, 2003).
5. **Impression Formation:** Several works have emerged attempting to explain how followers cultivate observations of charisma, transformational leadership, politics and dues paying (Martinko *et al.*, 2007).

More recently, Eberly and Fong (2013) demonstrate that co-dependent followers are sensitive to leader emotional inconsistency when making attributions about such leaders. Yukl (2013) posits that the attributions that followers make about a leader have important implications for the leader in terms of retaining their position by being perceived as competent, or losing such position due to being perceived as incompetent. Harvey, Madison, Martinko, Crook and Crook (2014) present an analysis of the predictive power of attributions in organisational contexts, and demonstrated by means of a meta-analysis of existing attributional theory research that the effect sizes of attributions have consistently been comparable to any of the more commonly used predictor variables in an organisational context. They further observe that although their analysis proves that attributional theory is significant in an organisational context, attribution theory has been consistently under-utilised in organisational research, and therefore note this as an opportunity for further research (Harvey *et al.*, 2014). Interestingly, Goleman (2004) notes that leaders with a high self-awareness display a gracefulness in learning about their shortcomings, and therefore should welcome both feedback into follower attributions as well as constructive criticism, which is exactly what this research provides.

3.4 Combination of followership and Attribution Theory in literature

Whilst there is noteworthy (albeit sparse) research in both the followership and attribution theory of leadership fields, the researcher was unable to find a single publication featuring a combination of the two in any form whatsoever. This is surprising, as Meindl (1995) asserts that followers are more influenced by their own personal perceptions of a leader's skills and traits than by such a leader's actual skills or traits. The subjective nature of these follower perceptions mean that a leader's effectiveness is greatly influenced by not only skill-level and behaviour, but even more so by how their followers perceive them (Singh and Bodhanya, 2013; Clifford and Cohn, 1964). Harms and Spain (2014) propose that the perceptual biases followers hold of their leaders may potentially be a fertile avenue for future research. This is

referred to as Followership Dynamics, and implies that the perceptions that followers have of their leaders can be partially responsible for leadership effectiveness or ineffectiveness. Follower perceptions could therefore play a vital role in determining leadership effectiveness. It is here that this study adds to the body of knowledge.

3.5 Leadership and followership in a South African ATC environment

Until recently, no research had been conducted regarding leadership or followership in a South African ATC environment. In 2014, Joubert produced a ground-breaking dissertation providing academic, process, industry and methodology understandings into interpretations held by followers concerning leadership and followership hypotheses. He records a future research possibility as instructing followers to analytically grasp and appraise leadership performance, which interfaces well with the area of concentration of this study. When combining followership with the Attribution Theory of Leadership in a South African ATC context, a search of existing research yielded no available result. As such, this research is seemingly the first of its kind in this narrow, combined field.

3.6 Concluding perspective

As the above literature review clearly shows, a definite cone of silence exists within the realms of followership and Attribution Theory when the two theories are combined, but more so when that combination is narrowed down into the very specialised field of ATC. This provides a suitable platform for the research hypothesis, which is ostensibly the only research to date in this narrow, combined field as presented and substantiated in this chapter.

This chapter provided a critical review of the literature available in the domain of the research topic. The available literature on followership as an autonomous field of study was reviewed, as was the Attribution Theory of Leadership. The literature available when these two fields are combined was then evaluated, and the lack of literature available when this combination is applied in a South African ATC context was recorded. Chapter 3 provides a detailed examination of the research methodology which is utilised to answer the research questions.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

Researchers require a thorough understanding of the goal of their specific research, together with a clear plan of how to approach the research to achieve this goal (Leedy and Ormrod, 2014). This knowledge must motivate their practical approach for both selecting and implementing a particular method, as well as relating their data analytically with the research findings (Joubert, 2014). These methodological imperatives guided the entire research philosophy and dynamic.

This chapter outlines the research methodology that was selected and utilised in this research project. It commences with reiterating the research problems stated in Chapter 1, and delineating the research hypothesis. The research design and framework is unpacked, before issues of validity and reliability are discussed and assumptions and limitations declared. Lastly, ethical considerations are examined and the management of the research process depicted.

4.2 Research problem and hypothesis

4.2.1 Research problem

The research problem for this study is noted in Chapter 1 as:

a) Sub-problem 1

To what extent does the way in which leaders think that their followers perceive them differ from how they are actually perceived?

b) Sub-problem 2

If a discrepancy between follower perceptions and leader opinions of follower perceptions exists, what is the relationship between this discrepancy and the level of follower morale?

4.2.2 Research hypothesis

With these research problems in mind, the research hypothesis is defined as:

Incongruence may exist between follower attributions and leader perceptions of follower attributions within the various pools in the researched ATC centre, and such a discrepancy could result in lower perceived and experienced levels of morale of ATCO followers within their pool.

4.3 Research design and framework

The nature of the data that had to be obtained to complete this research lent itself to both quantitative and qualitative approaches. Various research methodologies were considered to

effectively amalgamate both qualitative and quantitative methods. Mouton (2001) opines that the preferred methodology is dictated by *the spirit of research*, and in this vein it was decided to use a convergent parallel mixed-method approach incorporating phenomenological aspects and to use both triangulation and semantic similarity frequency coding to combine and interpret the resulting data.

By utilising a convergent parallel mixed-method approach, quantitative and qualitative data are collected concurrently, after which the two datasets are analysed separately before being integrated by merging the results during interpretation or analysis (Nova Southeastern University, 2011).

The Oxford English Dictionary (1995) defines phenomenology as “The science of phenomena as distinct from being (ontology). b. That division of any science which describes and classifies its phenomena. From the Greek *phainomenon*, appearance.” It is the study of ‘phenomena’, or the appearance of things as we experience them and the meanings they have in our experience. Phenomenology is therefore the study of conscious experience from a subjective point of view (Smith, 2013).

Triangulation is a widely used term (Bergman, 2008) to describe the act of combining several research methods to describe one phenomenon (Holland, 2009). It was first used in Campbell and Fiske’s (1959) discussion on measurement instruments, and later in Webb, Campbell, Schwartz and Sechrest’s (1966) work on unobtrusive measures. It was subsequently introduced into qualitative method discussions by Denzin (1970), and has become one of only a handful of technical terms regularly used by qualitative researchers (Bergman, 2008). Triangulation is utilised in the context of this research to implement a convergent parallel mixed methods design, as graphically described in Figure 4:

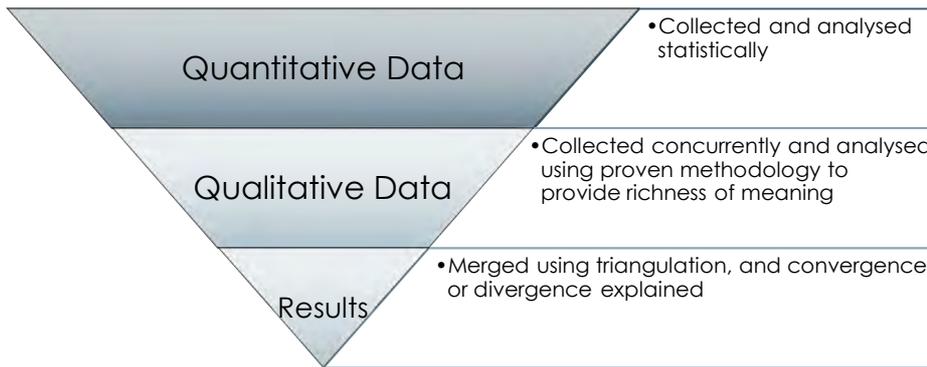


Figure 4: Convergent Parallel Mixed Methods Research using Triangulation

As illustrated in Figure 4, quantitative and qualitative data are collected concurrently, then analysed separately before being merged by means of triangulation, analysed and interpreted. This provides richness of meaning to the research findings.

Semantic similarity frequency coding is a recent and innovative method developed by Coetzee (2015b), by comparing interviews with 270 aircraft pilots in terms of the frequency with which they used certain phrases or words, and using the results to develop a semantic similarity frequency coding chart which codes and assigns relevance to the data obtained from the interview to said frequency, and results in a nomenclature of dominant semantics. This method adds richness in meaning to the obtained data.

Mixed methods research combines quantitative and qualitative research techniques in a single study, thus creating a set of complementary data gathering activities that compensate for the shortcomings of individual methods and resulting in collected data that are thought to be descriptively generative and informative as well as quantitatively meaningful (Lee, 2011). By using a mixed-methods approach, the aim is to provide a more complete understanding of the data obtained by the research question than would have been the case using only a quantitative or qualitative approach.

With this in mind, the research design can be divided into two sections:

4.3.1 The qualitative section: Interviews with leaders

The researched centre consisted of only four leaders, therefore the researcher chose a qualitative approach with face-to-face interviews, as this type of data gathering tool is considered to be the best method of data collection to limit non-response and amplify the quality of the gathered data (Dialsingh, 2008). Additionally, it is best used for gathering data

of a sensitive nature, such as in this case. Face-to-face interviews have inherent strengths and weaknesses, which in the context of this research are as follows:

a) Strengths

A face-to-face interview affords greater scope to pose open-ended questions, as well as for the interviewer to detect non-verbal clues to extract the maximum amount of information from the interviewee (Phellas, Bloche and Seale, 2012). Additionally, the characteristics of the interview subject such as tone or hesitation can be evaluated. This is ideal for the researched scenario, as the researcher had to glean a thorough understanding of the various opinions that the leaders held on how their followers perceive them.

b) Weaknesses

Face-to-face interviews can be time-consuming and costly. It is therefore wise to limit the size of sample to be interviewed, as is the case in this research. More importantly, the presence of an interviewer can introduce bias, which makes robust validation of utmost importance (Phellas *et al.*, 2012). The interviewer should therefore refrain from 'leading' the interviewee in his or her answers (Hofstee, 2011).

4.3.2 The quantitative section: Questionnaires to followers

The group of followers researched consisted of 105 current and active ATCOs, who are highly skilled individuals with excellent language proficiency, strong personalities and above-average intelligence (Chesney, Black, Chadwick and Rosenman, 1981). Additionally, the researched group were mostly frustrated with the state of affairs in their centre, as well as the resulting low morale, and were therefore strongly motivated to participate in an initiative that might make a difference. A quantitative, survey-based approach was decided upon, as it is easy to administer to a large group of people and eliminates bias to a great extent (Phellas *et al.*, 2012). Eliminating bias from follower attributions is crucial when presenting the results of the research to have a true reflection of the match or mismatch with leader perceptions of follower attributions. The researcher was able to deliver the surveys to each respondent in person with a brief explanation, thus increasing the likelihood of a response (Hofstee, 2011), reducing the possibility of non-receipt and saving on delivery costs.

a) Strengths

Firstly, and most importantly, surveys can be anonymous. In the case of this research, this is of utmost importance if any meaningful data is to be collected from the followers, as they

could be intimidated by possible consequences to their careers should their identities be compromised. A well-constructed survey can have a high validity (Hofstee, 2011), which in this case would contribute to the reliability of the research findings. Posing closed-ended questions greatly simplifies the data analysis (Phellas *et al.*, 2012), which is important in a large population such as this.

b) Weaknesses

A common pitfall with survey-based instruments is that they may contain design flaws, which need to be addressed by means of proper validation (Leedy and Ormrod, 2014). Low response rates are also regularly encountered (Phellas *et al.*, 2012), and the researcher posits that this is ameliorated by the researched ATCO group's motivation to make a difference to the current state of affairs, and the expectation that this research will do just that. Additionally, the questionnaire was individually hand-delivered to the respondents, and completed in the researcher's presence to obviate a low response rate.

The researched group was divided into leaders consisting of four ATC pool managers, and followers consisting of 105 ATCOs. The leaders were interviewed in a face-to-face manner to obtain qualitative data (interview structure attached as Appendix A), and the followers were given surveys (Appendix B) to complete to obtain quantitative data. Results were triangulated and combined using a convergent parallel mixed-method approach with richness of meaning to the qualitative data provided by semantic similarity frequency coding. Phenomenological aspects were contributed by virtue of the fact that the researcher herself is a current, valid ATCO at the researched centre. Whilst this provided much-needed benefits such as access to the restricted premises and enhanced cooperation from colleagues, the researcher had to be careful to eliminate researcher partiality.

4.4 Methodology, sample and analysis

The actual research instruments are now considered, as well as the data produced and how it is analysed.

4.4.1 Research instruments

The crux of this research lay in comparing the answers to the same questions posed to both leaders and followers, and analysing the correlation or differences to ascertain their effect on morale. It is thus clear that regardless of whether the data was mined quantitatively or qualitatively, it had to be based on the same questionnaire to facilitate meaningful comparison. The proposed researched instruments aimed at providing such homogenous

data. The preliminary face-to-face interview structure for the qualitative portion of the research is attached as Appendix A. Similarly, the draft survey form for the quantitative portion is attached as Appendix B. Both instruments have been validated as described in section 4.5.3 below.

A Likert-type scale is utilised, and Likert-type scales are based on uni-dimensional scaling methods. Additionally, they assume the concept being evaluated to be one-dimensional in nature and are commonly used for gathering information related to attitude, emotion, opinion, personality or manifested behaviour in the social sciences, marketing, medicine and general business environments (Gliem and Gliem, 2003).

Both the survey form and the interview structure contained exactly the same 'Leadership Style Inventory' section. This is the basis upon which the perception that each leader has about what attributions his or her followers are making of him or her are to be compared with the attributions that the followers are actually making, providing the independent variable to the hypothesis. A 'Pool Wellbeing' section is also included in both instruments, to gauge both the leader's and the followers' perception of the morale within the pool, supplying the dependent variable to the hypothesis. The researcher is therefore confident that, after validation, the attached instruments are able to provide the required data to measure the relationship between the two variables contained within the research hypothesis.

The 'Leadership Style Inventory' section of each instrument was designed by the researcher with kind assistance from Emeritus Professor J.J.L. Coetzee (2015a), from the North West University and the University of the Free State. It is intended to provide a scale for both leaders and followers to rate the occurrence of selected key leadership attributions within the leader in question. The specific attributions to be tested were selected by the researcher from a wide variety of literature on the subject (Eberly and Fong, 2013; Green and Mitchell, 1979; Hollander, 1992a; Hollander, 1992b; Kelley, 1971; Kent and Martinko, 1995; Martinko *et al.*, 2007; Mitchell, 1982; Weiner, 1986; Zuckerman, 1979), and based on the researcher's experience in consultation with various colleagues, of the requirements for effective leadership in the ATC environment. The attributions and the question number in which it was tested are summarised in Table 3:

Table 3: Attribution Testing Distribution - Leadership Style Inventory

ATTRIBUTION	TESTED IN QUESTION NUMBER
CONSCIENTIOUSNESS	1, 2, 32, 34, 36, 38
CONSISTENCY	2, 22, 23, 29, 30, 31, 32, 33, 34, 36, 39
ENCOURAGEMENT	3, 4, 10, 11, 12, 13, 17, 25, 26, 30, 33, 35, 36, 38
FAIRNESS	3, 13, 16, 26, 29, 30, 31, 32, 33, 39
LEADERSHIP	2, 5, 6, 7, 8, 9, 10, 11, 15, 19, 20, 21, 24, 25, 28, 32, 35, 36, 37, 38, 39, 40
LOYALTY	7, 30, 33, 36
MORALITY	5, 6, 8, 9, 11, 15, 16, 20, 29, 31, 32
OPENNESS	16, 22, 23, 34, 38, 39
PROFESSIONALISM	1, 2, 5, 8, 9, 11, 15, 37, 40
REPUTE	2, 5, 6, 7, 8, 9, 11, 15, 16, 19, 20, 21, 24, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40
TRUST	6, 7, 8, 9, 11, 15, 16, 20, 21, 24, 26, 28, 29, 30, 32, 33, 36, 37, 38
COMMUNICATION	3, 16, 22, 23, 24, 34, 36, 39

As illustrated in Table 3, a strong ‘repute’ attribution is identified as the most essential component to effective leadership in an ATC environment, with ‘leadership’ trailing closely. The researcher opines that this is a direct result of the strong personality types of the followers, and the strong leadership skills as well as respect for the leader’s ability that this requires (Dean *et al.*, 2002; Friedman and Rosenman, 1974). The criteria used to link a question to an attribution as listed in Table 3 is summarised in Table 4:

Table 4: Attribution Testing Criteria

CONSCIENTIOUSNESS	Desires to do the task well, is thorough, careful, vigilant, efficient and organised
CONSISTENCY	Does things (good or bad) every time without fail
ENCOURAGEMENT	Personally encourages, or contributes to encouraging environment
FAIRNESS	Deals fairly with subordinates, including violations and mistakes
LEADERSHIP	Leadership style leads to trust, pride and respect from pool and others
LOYALTY	Is primarily loyal to pool: mistakes and problems dealt with intra-pool first
MORALITY	Personal and professional morals lead to trust and respect from all
OPENNESS	Transparency in actions leads to trust and cooperation
PROFESSIONALISM	Professional conduct is consistently of a high standard and leads to respect
REPUTE	Conduct leads to high regard/reputation with pool members and outsiders
TRUST	Is trusted by pool to have their best interests at heart
COMMUNICATION	Communicates consistently and often, leading to trust and respect

Table 4 summarises the criteria that were used to ascertain whether a question on the questionnaire should be included in the calculation to test a particular attribution. Statistical analysis in this research was done with assistance from Dr S. Ellis (2016), senior statistical

consultant at the North West University. Analysis of the composition of attributions listed in Table 3 reveal them to be reliable and statistically significant:

Table 5: Analysis of Variance (effects are significant at $p < 0.05000$)

VARIABLE	SS EFFECT	df EFFECT	MS EFFECT	SS ERROR	df ERROR	MS ERROR	F	p
CONSCIENTIOUSNESS	5.56351	3	1.854503	52.03677	102	0.510164	3.63511	0.015377
CONSISTENCY	8.76034	3	2.920112	48.22266	102	0.472771	6.17659	0.000671
ENCOURAGEMENT	10.63664	3	3.545547	48.11305	102	0.471697	7.51659	0.000136
FAIRNESS	6.53170	3	2.177234	49.14677	102	0.481831	4.51867	0.005115
LEADERSHIP	6.53170	3	2.983311	57.39135	102	0.562660	5.30215	0.001947
LOYALTY	7.90502	3	2.635005	62.86890	102	0.616362	4.27510	0.006921
MORALITY	6.98092	3	2.326940	59.22041	102	0.580592	4.00787	0.009654
OPENNESS	12.10434	3	4.034779	66.38367	102	0.650820	6.19953	0.000653
PROFESSIONALISM	7.07096	3	2.356986	51.89215	102	0.508747	4.63293	0.004440
REPUTE	6.29110	3	2.097032	52.81450	102	0.517789	4.04997	0.009160
TRUST	7.20824	3	2.402747	61.55070	102	0.603438	3.98176	0.009973
COMMUNICATION	10.41046	3	3.470153	63.34047	102	0.620985	5.58814	0.001372

Table 5 shows that the composition of all attributions are statistically significant. The research instruments were subjected to a pilot test at Wonderboom ATC centre before use in this research to ensure that the correct data is obtained, as well as that questions correctly represents the attributions to be tested.

4.4.2 Data

Hofstee (2011) posits that it is always desirable to have a greater amount of data, or to have more accurate data. In conjunction with the fact that this research will be the first of its kind conducted in the South African ATC environment, it has prompted the researcher to attempt eliciting as much data as possible even though only a portion of it is used for this specific research, enabling future studies to use the superfluous data to expand on the limitations of this study, and broaden the body of knowledge. Whilst this rendered the questionnaires considerably protracted, a high response rate was nevertheless obtained as a result of the motivation of the followers to change the current state of affairs in the centre for their own benefit. An extended questionnaire approach is also preferable to having to collect data in various separate attempts, owing to the irritation factor that this presents to respondents (Kumar, 2014).

a) Population and sample

The population for this research consisted of the entire ATCO staff complement at the researched ATC centre, involving four pools of ATCOs, each with their own pool manager as leader. This implies 4 leaders and 105 followers. The population entailed highly intelligent and skilled individuals, with an exceptional level of language proficiency being a prerequisite for becoming an ATCO, which greatly aided the respondents' comprehension of possibly complex questions.

The researcher employed a census approach to sampling, which implies that the population in its entirety was researched. Considering the size of the population, this was manageable within the time frame for the research and preferable to sampling, as a high level of representation is essential for the acceptance of the findings by both the leaders in question as well as the company as a whole. The sample size can thus be described as 100% of the population.

b) Strengths and weaknesses

The strengths of the obtained data are contained in the fact that it was completely representative of the entire population, thus totally removing researcher bias. This was necessary for two reasons. Firstly, the researcher was actively involved in the situation by being an employee at the researched centre. Secondly, the strength of the feedback given to the leaders (positive or negative correlation between their own perceptions and that of their followers) represented the perception of the entire pool of followers. Thus, including the entire population would largely remove follower bias.

A possible weakness was that the low level of current morale could have caused followers to answer questions in an overly negative manner, thereby skewing the data obtained. This was diminished by briefing each respondent about the requirement for objectivity upon presentation of the survey form. Similarly, the leaders might have tried to anticipate their followers' answers to obtain a higher level of matching. The researcher was alert to this fact when interviewing the leaders, and asked for clarification or further explanation when a suspicious answer was obtained. This, along with non-verbal cues, the fact that the researcher is very familiar with the researched centre's inner workings and the human nature trait of naturally not wanting to put oneself in a bad light (Heider, 1958), ameliorated the anticipated weakness substantially.

4.4.3 Analysis

The analysis of the essential data obtained from the research instruments in this study was reasonably simple, requiring the minimum statistical analysis to obtain the desired results. This is due to the research hypothesis that required a comparison of the ratings by leaders of their own perception of how followers perceive their attributions to the ratings that a follower provides. The average of the difference between these two ratings could then be compared to the rating by same follower of the morale in the pool. Doing this for every follower in the pool enabled the researcher to ascertain whether a higher level of mismatch in the attribution ratings does cause a lower morale perception score amongst followers. To provide context, background information and feedback to the company, the supplementary data provided by the research was statistically analysed and presented in the form of frequency distributions.

a) Methods, techniques and instruments

I. Essential data

Essential data in this case is defined as the data obtained from the population that is indispensable to the testing of the research hypothesis, found in the 'Pool Wellbeing' and 'Leadership Style Inventory' sections of the research instruments. It was analysed by comparing ratings as illustrated by provision of an example.

For the purpose of illustration, assume that the average scores for each of the categories as obtained from follower ratings are:

POOL WELLBEING (PLEASE MARK WITH AN X)

Please rate (in your opinion) the current level of the following within your pool:

		POOR	BELOW AVERAGE	AVERAGE	ABOVE AVERAGE	EXCELLENT
		1	2	3	4	5
1.	UNITY			X		
2.	HAPPINESS		X			
3.	MORALE	X				
4.	POOL LEADERSHIP			X		
5.	POSITIVE ENERGY		X			

Figure 5: Example of Average Follower Ratings in 'Pool Wellbeing' Section of Research Instrument

The example illustrated in Figure 5 would imply a rating of one out of a possible five under 'Morale', which, would indicate a low level of perceived morale by followers – the dependent variable in the research hypothesis. This can then be compared to the independent variable as illustrated by the next example of data comparison in the 'Leadership Style Inventory' section of the research instruments.

Again, for the purpose of illustration, assume a leader completes question one in the 'Leadership Style Inventory' as follows:

LEADERSHIP STYLE INVENTORY

		NEVER	ALMOST NEVER	SOME-TIMES	ALMOST ALWAYS	ALWAYS
NO	QUESTION/SITUATION	1	2	3	4	5
1.	My pool members consider me to be a true professional.				X	

Figure 6: Example of Leader Rating in Question 1 of 'Leadership Style Inventory'

Furthermore, assume the average rating obtained from his or her followers to the same question is as illustrated in Figure 7:

LEADERSHIP STYLE INVENTORY

(PLEASE MARK WITH AN X)		NEVER	ALMOST NEVER	SOME-TIMES	ALMOST ALWAYS	ALWAYS
		1	2	3	4	5
1.	My principal is a true professional.		X			

Figure 7: Example of Average Follower Rating in Question 1 of 'Leadership Style Inventory'

Figure 6 and Figure 7 illustrate a negative matching in the attribution tested by question one, obtained by comparing the rating of 4 given by the leader to the average rating of two given by the followers, resulting in a rating of minus 2.

It is therefore clear that the comparison of the matching of questions in the 'Leadership Style Inventory' section of the instruments with the perceived level of morale obtained from the 'Pool Wellness' section of the follower survey form produced a relationship between the two variables for each pool of followers. Comparing the relationships between the four pools statistically confirmed the research hypothesis.

II. Supplementary data

A selection of supplementary data obtained from the research instruments was qualitatively analysed in an attempt to clarify the reason for the research result. This was an attempt to meet the second objective of the study, as detailed in Chapter 1. Additionally, the researcher did an auto-ethnographic analysis of the contents of the 'Contextual Information' section of the leader interviews to provide motivation for the findings of the research.

4.5 Assumptions, limitations, validity and reliability

Every study makes assumptions and has certain limitations, as it is impossible to cover or include every single aspect pertaining to the research in a research project (Hofstee, 2011).

This is due to the time, financial and feasibility constraints inherent to all research. Additionally, the highest possible level of both the validity and reliability of the research instruments need to be attained before administering it to ensure that the results that are obtained from them are as error-free as possible (Leedy and Ormrod, 2014). These issues are addressed in this research as follows:

4.5.1 Assumptions

This study assumed a high level of intelligence, skill and language proficiency amongst respondents, owing to the professional capacity in which ATCOs operate and the inherent requirements for obtaining the job (Dean *et al.*, 2002). It furthermore assumed familiarity with terms such as 'centre', 'pool' and 'safety events', as they form part of the day-to-day language used in this environment. It is assumed that the researcher provided each respondent with a thorough background to the study, as well as an in-depth explanation of the requirements and conditions for participation to ensure validity and reliability as detailed in section 4.5.3 and 4.5.4. The study also accepted a low level of morale amongst followers in the researched centre at the time of research commencement (initially determined auto-ethnographically by the researcher and subsequently substantiated by the low average rating given to question 3 of the 'Pool Wellbeing' section of the follower questionnaire), and thus an eagerness to participate in an initiative that could change this state of affairs. Lastly, the study assumed that all respondents answered openly and confidently, without fear of victimisation or reprisal. This was achieved by ensuring anonymity in follower responses, and advising respondents of said anonymity prior to administering the survey form.

4.5.2 Limitations

- a) The study is limited to the researched centre at one specific company only, whilst maintaining repeatability at other centres and companies for possible future research.
- b) The low morale in the researched centre could be attributed to various causes other than those envisaged in the research hypothesis. These include working conditions, unhappiness with upper management (not middle management), compensational disagreements and company policy issues. Whilst excluded in this study, they are acknowledged and suggested as possible areas for future research.
- c) Indeterminate and unconditional generalisation is not the intention or aim of this study, nor is it implied.
- d) The availability of respondents as well as their eagerness to participate is noted as a possible limitation, as this study largely hinged on large scale participant cooperation.

4.5.3 Validity

Validity can be divided into Instrument Validity and Method Validity (Leedy and Ormrod, 2014). In this research, these concepts were dealt with as follows:

a) Instrument validity

Instrument validity refers to the degree to which there may be error in the measurement of a certain phenomenon due to some form of deficiency in the measurement instrument (Leedy and Ormrod, 2014). To enhance instrument validity in this research, the research instrument was submitted to a panel of experts (consisting of Coetzee (2016) and Hughes (2016), whose credentials and sign-off of the questionnaires are attached in Appendix I). Subsequently, it was subjected to a small pilot study at Wonderboom airfield ATC centre to gauge whether the data obtained from the instruments were indeed that which was required to answer the research question, and whether the respondents could easily understand all the questions as well as the flow of the questionnaires. This was done prior to use in the research, and both processes had positive outcomes.

b) Method validity

Method validity refers to the validity of the research project as a whole – its accuracy, relevance and credibility (Leedy and Ormrod, 2016). To enhance internal validity in this research, triangulation was used as specified section 4.3. The external validity was improved both by conducting the research in a real-life setting and the representativeness of the sample – in this case, 100% of the population.

4.5.4 Reliability

According to McMillan and Schumacher (2001), certain actions can be taken to enhance the level of reliability in survey research. With regards to the Follower Survey Form, these actions were implemented as follows:

- a) All participants were given standardised instructions and directions with regards to completing the survey, including instructions to not discuss their answers with others.
- b) Participants must be motivated to complete the survey. This was achieved by making participation completely voluntary.
- c) The researcher administered the survey form in person, aided by a comprehensive cover letter and verbal instructions to respondents. It was assured that the same person administered the survey each time.

Concerning the Leader Interview Structure, the following actions elevate the level of reliability of the data obtained:

- a) The researcher made voice recordings of all interviews (with the necessary pre-approval of the participant), as well as kept detailed notes during and after the interviews. This helped to ensure that no misunderstandings or misinterpretations occurred.
- b) The researcher provided an opportunity for each respondent to comment and provide feedback on the researcher's interpretation of the interview, in order for the respondent to correct any errors in understanding or representation that the researcher may have made.
- c) The open-ended section of the interview was used as background information only and not as basis for the research findings, which are based on the rating-scale section. This eliminated the opportunity for a misunderstanding or misinterpretation to influence the outcome of the research.

4.6 Ethical considerations

Whenever human beings are the focus of investigation, their potential to think, feel and experience physical or psychological distress must compel researchers to look closely at the ethical implications of what they are proposing to do (Leedy and Ormrod, 2014). In this light, the researcher took the following steps:

The researcher:

- a) Endeavoured to protect participants from harm, including but not limited to emotional harm, and not infringing on their right to self-respect and human dignity.
- b) Obtained voluntary and informed participation at all times, as well as consent from all participants to use their participation in the research findings.
- c) Respected the participants' right to privacy at all times by not disclosing the identities of participants to anyone.
- d) Endeavoured to maintain complete and outright honesty with professional colleagues by providing all facts without distortion or misrepresentation, reporting all and any flaws, conflicting evidence and limitations, and avoiding researcher bias as much as humanly possible.
- e) Obtained permission for the study from the company involved, submitted the questions and probes developed for company approval prior to being administered to participants, and submitted the completed research project to the company for approval before

submitting it for examination purposes. The written company permission is attached as Appendix E.

- f) Communicated the results of the research to all participants after the completion of the study.

4.7 Management of research process

The researcher was solely involved in all aspects of the research. The qualitative interviews were conducted personally and individually with each pool manager, and the quantitative questionnaires were handed to each follower in person, along with a brief verbal explanation of the research aim. This verbal explanation was supplemented by a written participant information sheet (attached as Appendix H), and the researcher was present for the completion of each quantitative questionnaire, answering all questions posed by the participants. Each participant completed a standard Unisa Informed Consent form (attached as Appendix G) indicating their willingness to participate in the research on a voluntary basis.

4.8 Concluding perspective

This chapter is aimed at explaining the methodology utilised to answer the research questions. It commenced by reiterating the research problem and delineating a research hypothesis before moving on to a description of the research design and framework. A discussion of methodology, sample and analyses methods ensued, where after assumptions, limitations, validity and reliability issues were considered. Finally, ethical considerations were examined, and the management of the research process delineated.

In the next chapter, the research results are detailed.

CHAPTER 5: RESEARCH RESULTS

5.1 Introduction

This chapter details the research results. It commences with defining variables and specifying the population grouping, before naming and explaining the statistical instruments applied in analysis. It then proceeds to statistical analysis and modelling of the research data, firstly by analysing the essential data using a quantitative method and thereby both answering the research question as well as achieving the first objective of the study. Secondly, it concludes by analysing supplementary data qualitatively to achieve the second research objective.

The data collection for this research was exceptionally well received by respondents, with only one questionnaire refused and two unreturned out of the total of 105 administered follower questionnaires, which translates into a 97% response rate. As stated previously, a census approach to sampling was utilised, and as such the entire targeted population was researched. A difficulty encountered was the length of time required to personally hand follower questionnaires to respondents (as specified as a prerequisite in section 4.5.4), due to the random shift basis that staff operate on – at times the researcher went weeks without encountering certain individuals due to opposing rostered shifts.

The researched follower population consists of 23 females and 78 males, with one person not specifying gender. Four followers did not specify age, and the remainder are grouped as follows:

Table 6: Age Composition of Researched Follower Population

AGE	<i>n</i>
20-29	15
30-39	51
40-49	28
50-59	4

Table 6 shows the age composition of researched followers. Leaders consist of three males and one female, with two being in the 40-49 age bracket, one in the 30-39 bracket and another in the 20-29 bracket. All of them consented to an interview, and in the interest of anonymity will all be referred to as 'he,' 'him' or 'his' for the remainder of this document.

5.2 Definition of variables and population grouping

To analyse any dataset statistically, it has to be defined in terms of size and representation of the total researched population, and variables to be used for such analysis should be clearly defined (Steyn, Smit, Du Toit & Strasheim, 1999). This section defines the variables used for analysis, and describes the population grouping.

5.2.1 Definition of variables

Biographical details, captured in the 'Employee Profile' (EP) Section of the questionnaire, are defined as follows:

Table 7: Employee Profile Variables

EP1	EP2	EP3	EP4	EP5	EP6
AGE GROUP	CURRENT POSITION	GENDER	HIGHEST QUALIFICATION	EXPERIENCE WITHIN COMPANY	EXPERIENCE WITHIN POOL

Table 7 denotes the variable names for the biographical details of respondents, with Table 8 listing the variables defined for analysis of the 'Pool Wellbeing' (PW) section of the questionnaire:

Table 8: Pool Wellbeing Variables

PW1	PW2	PW3	PW4	PW5
UNITY	HAPPINESS	MORALE	POOL LEADERSHIP	POSITIVE ENERGY

As illustrated in Table 8, the five items tested under 'Pool Wellbeing' are named and listed as variables. The 42 questions contained in the 'Leadership Style Inventory' section of the questionnaire are named as follows:

Table 9: Leadership Style Inventory Variables

LSI1	LSI2	TO	LSI41	LSI42
QUESTION 1	QUESTION 2		QUESTION 41	QUESTION 42

Table 9 denotes the naming convention for variables containing data from the 'Leadership Style Inventory' section of the questionnaire, starting at *LSI1* and continuing sequentially to *LSI42*. When the average of follower answers to an *LSI* question is compared to the leader's answer for the same question, a discrepancy value is obtained which can be either positive, negative or equal to zero. This value is denoted as the *LSI_D* value. Lastly, the attributions listed in Table 3 are allocated variable names as follows:

Table 10: Attribution Variables

A1	A2	A3	A4	A5
CONSCIENTIOUSNESS	CONSISTENCY	ENCOURAGEMENT	FAIRNESS	LEADERSHIP
A6	A7	A8	A9	A10
LOYALTY	MORALITY	OPENNESS	PROFESSIONALISM	TRUST
A11	A12			
REPUTE	COMMUNICATION			

Table 10 indicates the variable names for the assorted attributions defined in Table 3 and described in Table 4.

5.2.2 Population grouping

The researched population consists of four pools of ATCO's and their respective pool managers. To maintain anonymity for both the leaders and followers, pools are named and ordered randomly as described in Table 11:

Table 11: Population Grouping

Pool Name	Leader Name	<i>n</i>
Pool A	Leader A	25
Pool B	Leader B	26
Pool C	Leader C	26
Pool D	Leader D	25
	Total	102

Table 11 illustrates the uniform distribution of the population amongst the different groups. A total of 105 questionnaires were distributed, with one declined and two not returned resulting in a dataset of 102 researched ATCOs ($n = 102$) and a response rate of 97%.

5.3 Statistical instruments applied

For analysis of the quantitative section of the dataset, various statistical instruments are applied. Cronbach's Alpha Coefficient (α) is used to determine the internal consistency and reliability of the dataset, and Spearman's Rho (r_s) to determine relationships between variables. As a result of the census approach to sampling that is employed, there is no need to compare the results for the sample to the entire population, as the sample is 100% representative of the population. This signifies that there are no t-Test values required for analysis, and the effect size value is used as a sufficient indication of practical data significance.

5.3.1 Cronbach's Alpha coefficient (α)

When using Likert-type scales as is the case in this research, it is critical to calculate and interpret Cronbach's α , which determines the internal consistency and reliability of any scale or subscale (Gliem and Gliem, 2003). Cronbach's α indirectly indicates the degree to which a set of items measure a single uni-dimensional construct, and is not robust against missing data entries (Coetzee, 2013). As such, the internal reliability of test scores generally increases as the inter-correlations between test items increase. Cronbach's α is defined as:

$$\alpha = \frac{K \cdot \bar{c}}{(\bar{v} + (K - 1) \cdot \bar{c})}$$

where K is the number of items, \bar{v} equals the average variance for the current sample of persons and \bar{c} is the average of all covariance between items across the sample of persons (IDRE, 2016).

When measured, Cronbach's α normally ranges between 0 and 1, with an α value closer to 1 being the best indication of internal consistency. The obtained value of α from applying the above formula to a dataset can be analysed as follows:

$\alpha \geq 0.9$ = excellent

$0.9 > \alpha \geq 0.8$ = good

$0.8 > \alpha \geq 0.7$ = acceptable

$0.7 > \alpha \geq 0.6$ = questionable

$0.6 > \alpha \geq 0.5$ = poor

$\alpha < 0.5$ = unacceptable (George and Mallery, 2003).

5.3.2 Correlations

Correlations are useful concepts which aid in determining the effect that one variable has on another. Spearman's Rho (r_s) is a non-parametric measure of the rank correlation of two variables (Ellis and Steyn, 2003). It is defined as the Pearson correlation coefficient between ranked variables. For a sample size n , the n raw scores $rg X_i$, $rg Y_i$ and r_s is computed from:

$$r_s = \rho_{rg X_i, rg Y_i} = \frac{\text{cov}(rg_X, rg_Y)}{\sigma_{rg_X} \sigma_{rg_Y}}$$

where ρ denotes the Pearson correlation coefficient applied to the rank variables, $\text{cov}(rg_X, rg_Y)$ is the covariance of the rank variables, and σ_{rg_X} and σ_{rg_Y} are the standard deviations (SD) of the rank variables (Steyn, Smit, Du Toit & Strasheim, 1999). The sign of

a Spearman's r_s indicates the direction of association between X and Y , with a positive number indicating that Y tends to increase when X increases and *vice versa*. $r_s = 0$ indicates that there is no tendency for Y to either increase or decrease when X increases, and $r_s = 1$ indicates a perfectly monotone relation between Y and X . As a two-tailed correlation, statistical significance of a Spearman's r_s value is obtained at $r_s \geq 0.05$.

5.3.3 Effect size

Effect size values are a natural way to comment on the practical significance of a dataset, and implies the standardised difference between the means of two populations. It renders the mean difference independent of sample size and units and relates it to the spread of data (Ellis and Steyn, 2003). The effect size value for the means of a dataset is depicted by Cohen's d -value and defined by the following equation:

$$d = \frac{|\bar{x}_1 - \bar{x}_2|}{s}$$

where d is the effect value, \bar{x} is the mean value for each set, and s is the pooled SD assuming $s_1 = s_2$. Cohen (1988) provides guidelines for the interpretation of data effect sizes:

- $d < 0.2$ = insignificant effect
- $0.2 \leq d < 0.5$ = small effect
- $0.5 \leq d < 0.8$ = medium effect
- $d \geq 0.8$ = large, practically significant effect.

Effect size is also a quantitative measure of the strength of a phenomenon, determining the practical significance of the relationship in a contingency table between two variables (Ellis and Steyn, 2003). It is given by:

$$w = \sqrt{\frac{X^2}{n}}$$

where X^2 is the usual Chi-square statistic for the contingency table, and n is the sample size. Cohen (1988) presents parameters for interpretation as follows:

- $w < 0.1$ = insignificant effect
- $0.1 \leq w < 0.3$ = small effect
- $0.3 \leq w < 0.5$ = medium effect
- $w \geq 0.5$ = large, practically significant effect.

5.4 Statistical data analysis and modelling

To provide meaningful research results, the consistency and reliability of the dataset needs to be ascertained first and foremost. Once this is determined, the data is analysed in two distinct phases: Firstly, the essential data as defined in section 4.4 is quantitatively analysed and modelled, providing information to answer the research question and achieve the first objective of the research. Assistance with statistical analysis was provided by Dr S. Ellis (2016) of the North West University. Secondly, attention is given to the supplementary data defined in the same section by analysing it qualitatively and triangulating the results with the essential data analysis, thereby providing evidence to achieve the second research objective.

5.4.1 Consistency and reliability of dataset

There were total 42 questions, with 102 of 105 respondents returning their questionnaires, representing a 97% sample population return. Cronbach's α is calculated as:

Table 12: Cronbach's α Calculation for Dataset

n	Test Mean	Test Variance	Test SD	Cronbach's α
105	2.98	1.0054	1.003	0,972

Table 12 contains the *Test Mean* (2.98) which is the average value of summations for the individual respondent's scores. The *Test Variance* (1.0054) represents the squared deviation of the *SD* for the entire dataset (1.003) from its *Test Mean* value. The calculated Cronbach's α value of $\alpha = 0,972$ indicates an excellent internal consistency and reliability of the dataset.

5.4.2 Quantitative analysis of essential data

This section aims to provide evidence to aid in answering the research question, as well as achieve the first research objective. Firstly, the differences between how the leaders scored their perception of how their followers see them are compared with the actual follower ratings. Secondly, the differences between these two ratings are compared to the morale ratings of the individual followers to ascertain the effect on overall pool morale. Lastly, the differences in attribution ratings between followers and leaders are detailed and graphically presented.

a) Follower and leader rating discrepancies

Complete datasets for analysis in this section can be found in Appendix D. In analysing the dataset, corrections were made to the variables *LSI11*, *LSI17*, *LSI20*, *LSI21*, *LSI24*, *LSI26* and *LSI28* to compensate for the negative slanting of the question. This was done by

subtracting the rating from the number 6 and thereby moving it to the opposite side of the Likert scale. Corrected variables are highlighted in yellow. *LSI_D* values for every question is obtained by subtracting the average follower answer to each *LSI* question from the leader's answer to the same question. The smaller the *LSI_D* value for a question, the more a leader over-estimates the positivity of follower perceptions for said question and *vice versa*.

i. Pool A

Leader A over-estimates *PW1_Unity* by 10.4%, *PW2_Happiness* by 36.8%, *PW3_Morale* by 27.2% and *PW5_Energy* by 24.8%. Conversely, Leader A underestimates *PW4_Leadership* by 14.4%. This implies that while the pool's perception of their unity, happiness, morale and positive energy is lower than what Leader A perceives it to be, their perception of Leader A's leadership ability is higher than what Leader A perceives it to be. Leader A answered most of the questions in an overtly positive fashion, rating 31 out of the 42 questions at the maximum positive score of 5 out of 5. This was not mirrored in the follower ratings, with the average follower rating for all the questions being 3.2 out of 5. The average *LSI_D* value is -1.4, indicating that Leader A over-estimates the positivity of follower perceptions by 28%. The variables (VAR) most over-estimated are:

Table 13: Variables with highest discrepancy between leader (LR) and follower (FR) ratings (Pool A)

VAR	Question	LR	FR	LSI_D
LSI19	My principal has an everlasting legacy and impact and will be remembered for this effect.	5	2.5	-2.5
LSI8	The principal is a person of stature, standing and status, which I admire and commend.	5	2.8	-2.2
LSI27	As a pool we are admired and respected by others.	5	2.9	-2.1
LSI28	I believe everybody would benefit from another/better principal. (corrected for negative slant)	5	2.9	-2.1
LSI34	Issues within the pool that hamper service delivery or lower morale are addressed as a matter of urgency, and resolved as soon as possible.	5	2.9	-2.1
LSI38	I have complete trust that my principal is steering our pool in the right direction.	5	2.9	-2.1
LSI16	Truth and trust constitute the ethics of our pool as personified by my principal.	5	3	-2.0
LSI35	I feel we are moving backward in terms of our procedures. We are stagnating, and to an extent even degrading. Change is therefore happening, but in a negative direction. (corrected for negative slant)	5	3	-2.0
LSI5	My principal is generally respected by all his/her direct reports.	5	3	-2.0

In Table 13, only rating discrepancies of $LSI_D \geq 2.0$ on both sides of the Likert scale are shown. The variables with the highest degree of matching between leader and follower ratings are:

Table 14: Variables with highest matching between leader and follower ratings (Pool A)

VAR	Question	LR	FR	LSI_D
LSI1	My principal is a true professional.	4	3.5	-0.5
LSI7	If I could I would find alternate employment. (corrected for negative slant)	4	3.5	-0.5
LSI26	It feels as though my principal is constantly looking over my shoulder, waiting for me to make a mistake. (corrected for negative slant)	5	4.4	-0.6
LSI3	My personal and professional efforts are duly recognised and rewarded by my principal.	4	3.4	-0.6
LSI42	This research is very necessary.	5	4.4	-0.6

Table 14 shows only rating discrepancies with a value $LSI_D \leq 0.6$ on both sides of the Likert scale. The LSI_D values for each LSI question are illustrated in Figure 8:

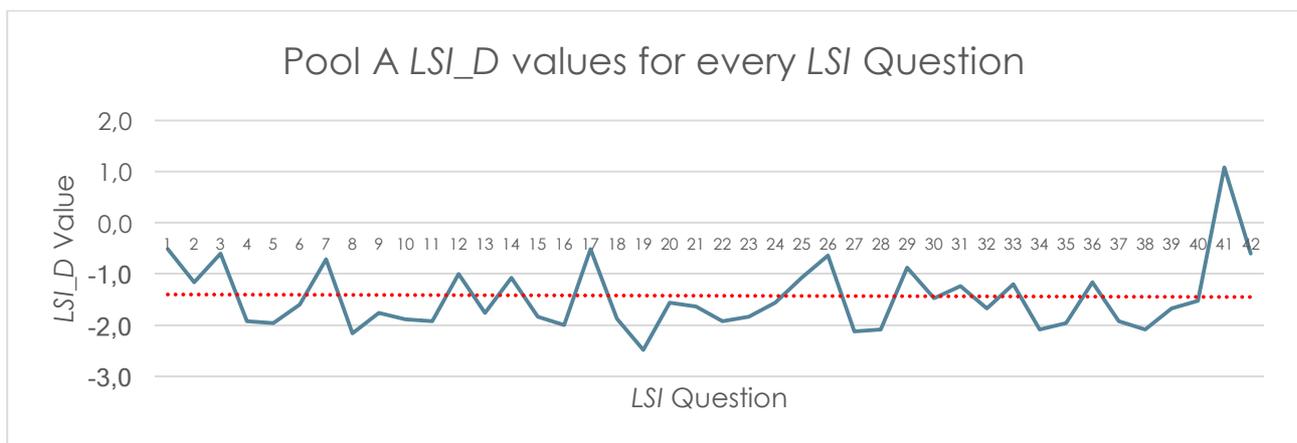


Figure 8: LSI_D values per LSI Question (Pool A)

Figure 8 graphically illustrates the LSI_D values for each LSI question, with the average discrepancy of $LSI_D = -1.4$ across all LSI questions indicated by a dashed red line.

The average SD is 0.99, which puts the average follower ratings between 4.2 and 2.2. Variables with noticeable discrepancies from the average SD (both high and low) are:

Table 15: Variables with distinct SD differences from average SD (Pool A)

VAR	Question	FR	SD
LSI5	My principal is generally respected by his/her direct reports.	3	1.22
LSI8	The principal is a person of stature, standing and status, which I admire and commend.	2.8	1.29
LSI21	My principal is preoccupied with status and driven by power. (corrected for negative slant)	3.4	1.29
LSI17	If I could I would find alternate employment. (corrected for negative slant)	3.5	1.33
LSI11	Our pool functions more like a <i>political parliament</i> than a centre of service excellence. (corrected for negative slant)	3.1	0.69
LSI37	My principal enjoys unqualified respect and support.	3.1	0.69
LSI2	Our pool is noted for its efficient and effective management and leadership.	3	0.73
LSI42	This research is very necessary.	4.4	0.75

As Table 15 indicates, a larger than average deviation denotes large discrepancy between individual follower ratings, with a smaller than average deviation denoting more unanimous ratings. Variables included in Table 15 conform to $0.75 \geq SD \geq 1.2$. Figure 9 illustrates the addition and subtraction of the individual SD values for each LSI question:

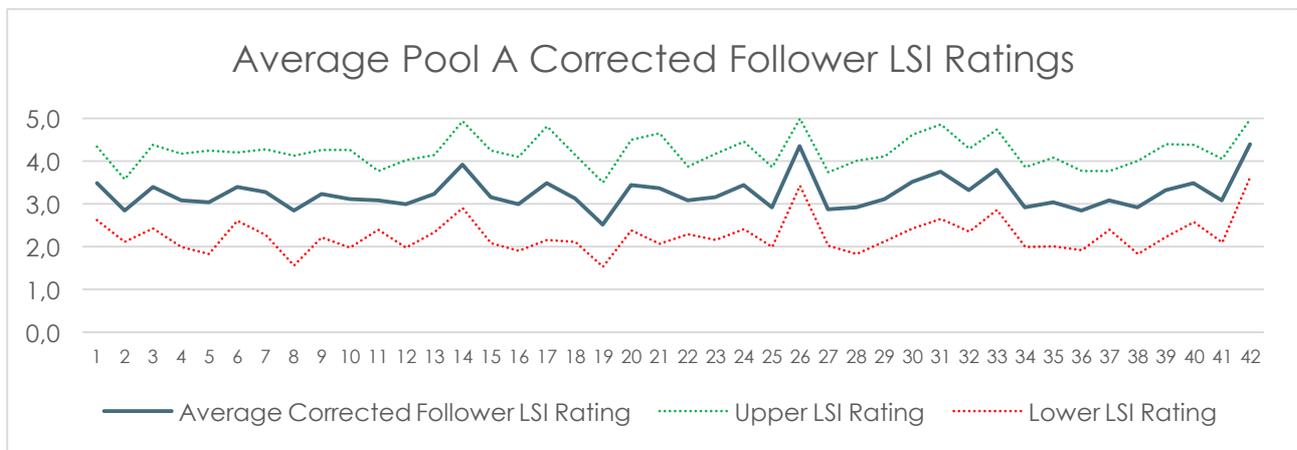


Figure 9: Average Corrected Follower LSI Ratings with SD applied (Pool A)

Figure 9 clearly illustrates the questions with both higher and lower levels of unison amongst follower ratings.

ii. Pool B

Leader B over-estimates *PW1_Unity* by 21.5%, *PW2_Happiness* by 16.9%, *PW3_Morale* by 26.2% and *PW5_Energy* by 21.5%. Leader B also underestimates *PW4_Leadership*, but only by 3.85% which implies that the pool’s perception of Leader B’s leadership ability roughly corresponds with what Leader B thinks their perception to be. Both Leader B and

Pool B answered the questions neutrally, with the average of follower ratings being 2.7 and the average of leader ratings 3.6. A notably low average for *PW3_Morale* (1.7 out of 5) exists in Pool B. The average *LSI_D* value is -0.9, indicating that Leader B over-estimated the positivity of follower perceptions by 18%. The variables most over-estimated are:

Table 16: Variables with highest discrepancy between leader and follower ratings (Pool B)

VAR	Question	LR	FR	LSI_D
LSI20	Controversy surrounds my principal. (corrected for negative slant)	5	2.8	-2.2
LSI35	I feel we are moving backward in terms of our procedures. We are stagnating, and to an extent even degrading. Change is therefore happening, but in a negative direction. (corrected for negative slant)	4	2	-2.0
LSI7	If I could I would find alternate employment. (corrected for negative slant)	4	2.2	-1.8
LSI22	Communication emanating from the principal constantly keeps everyone informed.	4	2.3	-1.7
LSI34	Issues within the pool that hamper service delivery or lower morale are addressed as a matter of urgency, and resolved as soon as possible.	4	2.3	-1.7
LSI11	Our pool functions more like a <i>political parliament</i> than a centre of service excellence. (corrected for negative slant)	4	2.4	-1.6
LSI37	My principal enjoys unqualified respect and support.	4	2.4	-1.6

In Table 16, only $LSI_D \geq 1.5$ on both sides of the Likert scale are shown. The variables with the highest degree of matching between leader and follower ratings are:

Table 17: Variables with highest matching between leader and follower ratings (Pool B)

VAR	Question	LR	FR	LSI_D
LSI2	My principal is a true professional.	2	2.2	0.2
LSI4	One is encouraged to be innovative and creative and not merely conformist.	2	2.2	0.2
LSI19	My principal has an everlasting legacy and impact and will be remembered for this effect.	2	2.2	0.2
LSI25	I personally benefit because of my principal and his/her style of leadership.	2	2	0.0

Table 17 shows rating discrepancies with a value of $LSI_D \leq 0.2$ on both sides of the Likert scale. The *LSI_D* values for each *LSI* question are illustrated in Figure 10:

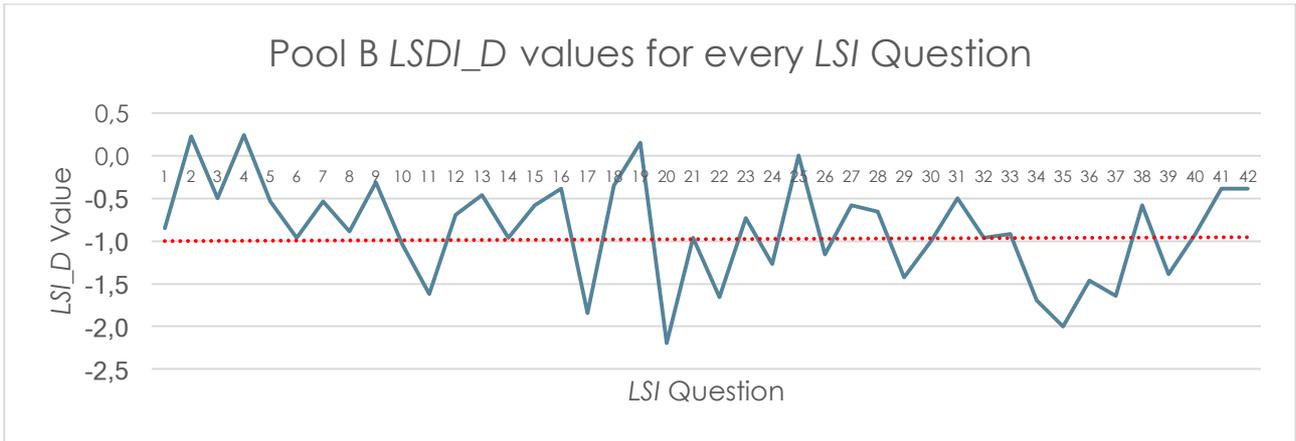


Figure 10: LSDI_D values per LSI Question (Pool B)

Figure 10 graphically elucidates the LSDI_D values for each LSI question, with the average discrepancy of LSDI_D = -0.9 across all LSI questions indicated by a dashed red line.

The average SD is 0.86, placing the average follower ratings between 1.8 and 2.6. Variables with noticeable discrepancies from the average SD (both high and low) are:

Table 18: Variables with distinct SD differences from average SD (Pool B)

VAR	Question	FR	SD
LSI41	The morale in our pool is comparable to that of most pools in the company as a whole.	2.6	1.3
LSI21	My principal is preoccupied with status and driven by power. (corrected for negative slant)	3.0	1.16
LS40	The leadership standard in our pool is comparable to that of most pools in the company as a whole.	3.1	1.14
LSI17	If I could I would find alternate employment. (corrected for negative slant)	2.2	1.13
LS23	We meet regularly with the principal (constructive interface) during which we strategise, review performance and shape focus.	2.3	0.59

As Table 18 indicates, a larger than average deviation denotes a large discrepancy between individual follower ratings, with a smaller than average deviation denoting more unanimous ratings. Variables included in Table 18 conform to the formula $0.6 \geq SD \geq 1.1$. Figure 11 illustrates the addition and subtraction of the individual SD values for each LSI question:

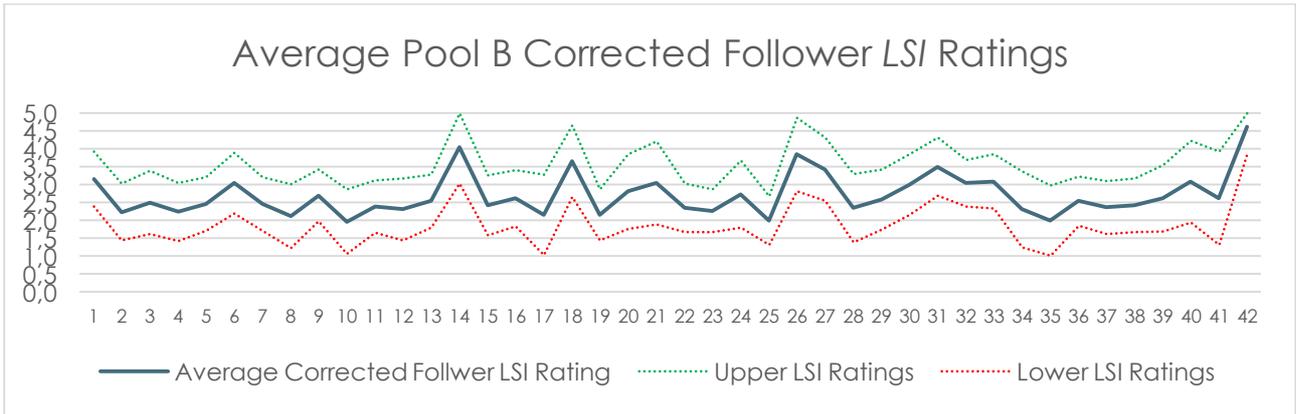


Figure 11: Average Corrected Follower LSI Ratings with SD applied (Pool B)

Figure 11 clearly illustrates the questions with both higher and lower levels of unison amongst follower ratings.

iii. Pool C

Leader C over-estimates *PW1_Unity* by 15.4%, *PW2_Happiness* by 10%, *PW4_Leadership* by 12.3% and *PW5_Energy* by 32.3%. Leader C only underestimates *PW3_Morale* by 4.6%, which implies that Leader C is exceptionally well aware that the followers perceive morale within the pool to be very low (2.2 out of 5). On average, there is a $LSI_D = -1.02$ discrepancy, indicating that Leader C over-estimates the positivity of follower perceptions by 20.4%. The variables most over-estimated are:

Table 19: Variables with highest discrepancy between leader and follower ratings (Pool C)

VAR	Question	LR	FR	LSI_D
LSI13	Acts of commission are applauded and acts of omission developed, i.e. intelligent mistakes are dealt with less harshly in the interest of personal and professional growth.	5	2.8	-2.2
LSI20	Controversy surrounds my principal. (corrected for negative slant)	5	2.8	-2.2
LSI21	My principal is preoccupied with status and driven by power. (corrected for negative slant)	5	3.0	-2.0
LSI32	My principal consistently "practices what he/she preaches".	5	3.0	-2.0

In Table 19, only rating discrepancies of $LSI_D \geq 2.0$ on both sides of the Likert scale are shown. The variables with the highest degree of matching between leader and follower ratings are:

Table 20: Variables with highest matching between leader and follower ratings (Pool C)

VAR	Question	LR	FR	LSI_D
LSI42	This research is very necessary.	4	4.5	0.5
LSI35	I feel we are moving backward in terms of our procedures. We are stagnating, and to an extent even degrading. Change is therefore happening, but in a negative direction. (corrected for negative slant)	2	2.2	0.2
LSI18	My principal is fully aware of the spirit within and the morale of the pool and team.	4	3.4	-0.6
LSI25	I personally benefit because of my principal and his/her style of leadership.	3	2.4	-0.6
LSI37	My principal enjoys unqualified respect and support.	3	2.4	-0.6
LSI22	Communication emanating from the principal constantly keeps everyone informed.	3	2.7	-0.3
LSI2	My principal is a true professional.	3	2.8	-0.2
LSI26	It feels as though my principal is constantly looking over my shoulder, waiting for me to make a mistake. (corrected for negative slant)	4	3.9	-0.1

Table 20 shows only rating discrepancies of $LSI_D \leq 0.6$ on both sides of the Likert scale. The LSI_D values for each LSI question are illustrated in Figure 12:

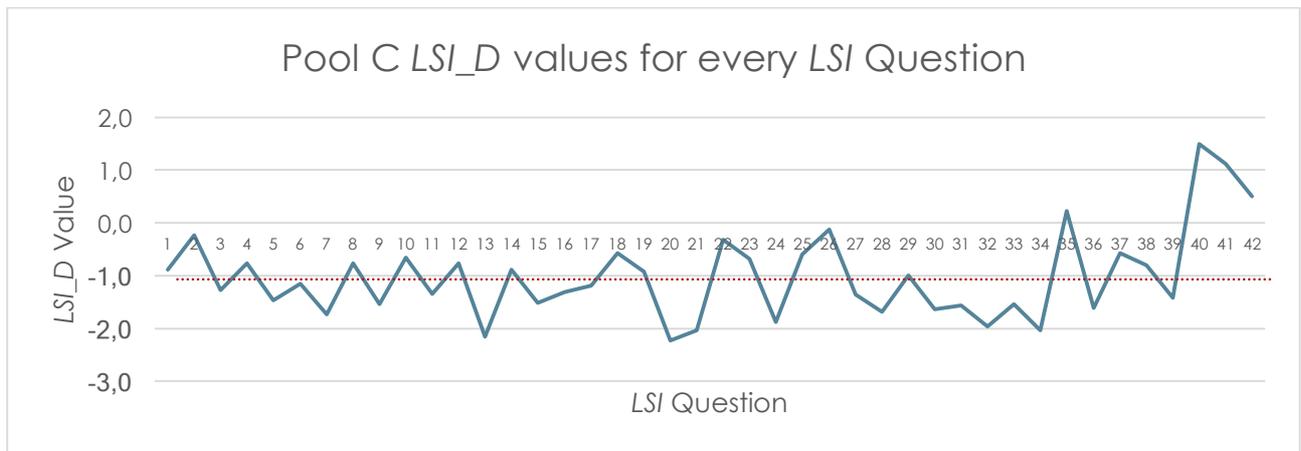


Figure 12: LSI_D values per LSI Question (Pool C)

Figure 12 graphically elucidates the LSI_D values for each LSI question, with the average discrepancy of $LSI_D = -1.0$ across all LSI questions indicated by a dashed red line.

The average SD is 0.90, which puts the average follower ratings between 3.7 and 1.9. Variables with noticeable discrepancies from the average SD (both high and low) are:

Table 21: Variables with distinct SD differences from average SD (Pool C)

VAR	Question	FR	SD
LSI11	My principal is a true professional.	3.1	0.64
LSI17	If I could I would find alternate employment. (corrected for negative slant)	2.8	1.33
LSI21	My principal is preoccupied with status and driven by power. (corrected for negative slant)	3.0	1.22
LSI23	We meet regularly with the principal (constructive interface) during which we strategise, review performance and shape focus.	2.3	0.61
LSI41	The morale in our pool is comparable to that of most pools in the company as a whole.	3.1	1.19

As Table 21 indicates, a larger than average deviation denotes large discrepancy between individual follower ratings, with a smaller than average deviation denoting more unanimous ratings. Variables included in Table 21 conform to $0.65 \geq SD \geq 1.15$. Figure 13 illustrates the addition and subtraction of the individual SD values for each LSI question:

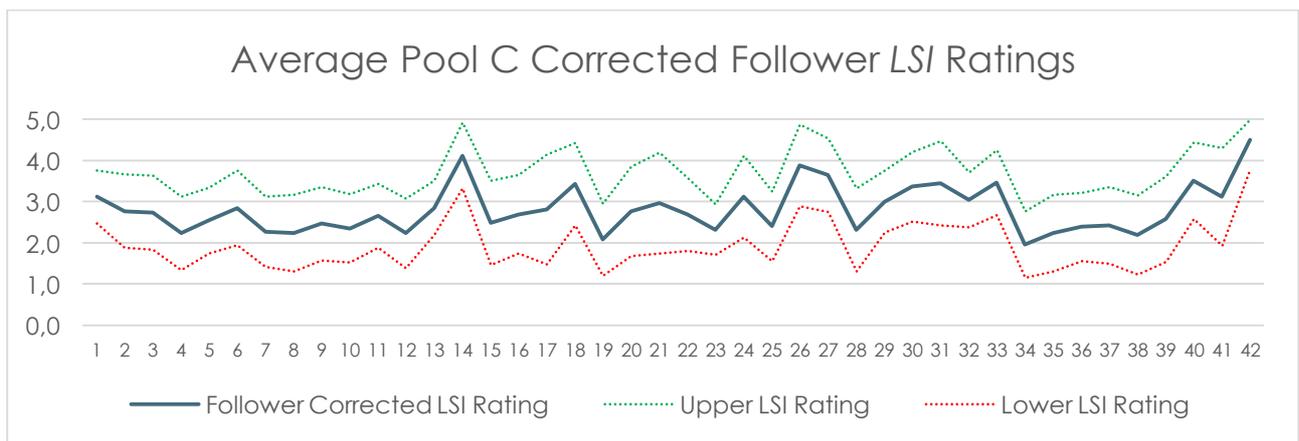


Figure 13: Average Corrected Follower LSI Ratings with SD applied (Pool C)

Figure 13 clearly illustrates the questions with both higher and lower levels of unison amongst follower ratings.

iv. Pool D

Leader D over-estimates *PW1_Unity* by 7.2%, *PW2_Happiness* by 8%, *PW3_Morale* by 9.6%, *PW4_Leadership* by 6.4% and *PW5_Energy* by 8%. These low percentages imply that Leader D is very in touch with the pool’s perceptions of the abovementioned variables. The average follower rating for all questions is 3.2 out of 5. Leader D opted not to answer four out of the 42 questions, opting instead for “not sure” as an answer. On average, there is a $LSI_D = -0.7$ rating discrepancy, indicating that Leader D over-estimates the positivity of follower perceptions by 14%. The variables most over-estimated are:

Table 22: Variables with highest discrepancy between leader and follower ratings (Pool D)

VAR	Question	LR	FR	LSI_D
LSI3	My personal and professional efforts and contribution are duly recognised and rewarded by my principal.	5	3.2	-1.8
LSI9	The lifestyle, conduct and integrity of my principal both personally and professionally are complementary and mutually inclusive.	5	3.4	-1.6
LSI27	As a pool we are admired and respected by others.	4	2.1	-1.9
LSI32	My principal consistently "practices what he/she preaches".	5	3.4	-1.6

In Table 22, only rating discrepancies of $LSI_D \geq 1.6$ on both sides of the Likert scale are shown. The variables with the highest match between leader and follower ratings are:

Table 23: Variables with highest matching between leader and follower ratings (Pool D)

VAR	Question	LR	FR	LSI_D
LSI18	My principal is fully aware of the spirit within and the morale of the pool and team.	3	3.2	0.2
LSI23	We meet regularly with the principal (constructive interface) during which we strategise, review performance and shape focus.	3	3.1	0.1
LSI37	My principal enjoys unqualified respect and support.	3	3.1	0.1
LSI41	The morale in our pool is comparable to that of most pools in the company as a whole.	3	3.1	0.1
LSI7	If I could I would find alternate employment. (corrected for negative slant)	3	3.0	0.0
LSI35	I feel we are moving backward in terms of our procedures. We are stagnating, and to an extent even degrading. Change is therefore happening, but in a negative direction. (corrected for negative slant)	3	2.8	-0.2

Table 23 shows only rating discrepancies of $LSI_D \leq 0.2$ on both sides of the Likert scale, due to the high level of matching overall making a higher value impractical. The LSI_D values for each LSI question are illustrated in Figure 14:

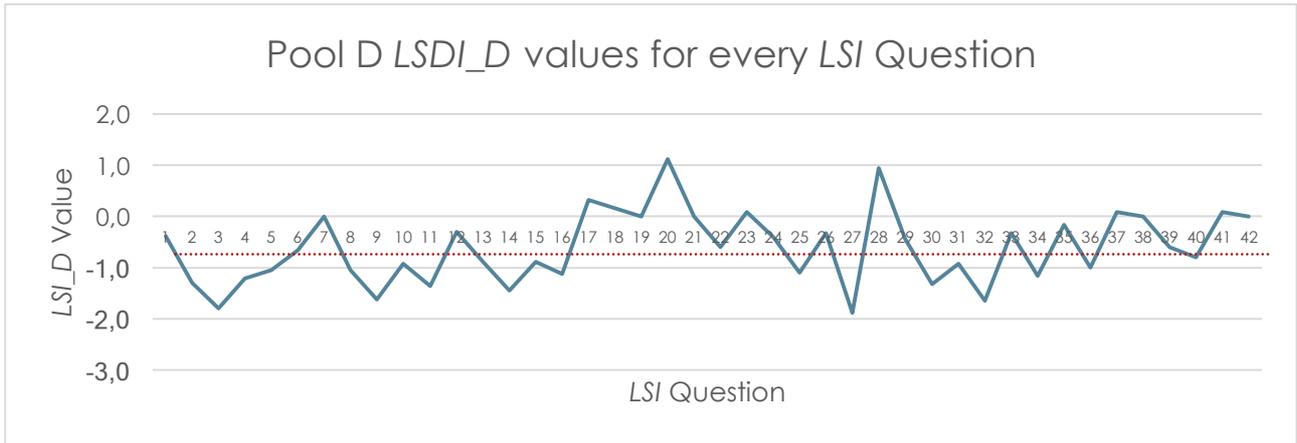


Figure 14: LSDI_D values per LSI Question (Pool D)

Figure 14 graphically elucidates the LSDI_D values for each LSI question, with the average discrepancy of LSDI_D = -0.7 across all LSI questions indicated by a dashed red line. The average SD is 1.0, which puts the average follower ratings between 4.2 and 2.2. Variables with noticeable discrepancies from the average SD (both high and low) are:

Table 24: Variables with distinct SD differences from average SD (Pool D)

VAR	Question	FR	SD
LSI17	If I could I would find alternate employment. (corrected for negative slant)	3.3	1.41
LSI28	I believe everybody would benefit from another/better principal (corrected for negative slant)	2.9	1.36
LSI21	My principal is preoccupied with status and driven by power. (corrected for negative slant)	3.5	1.27
LSI5	I am proud to be associated with my principal, and such association will enhance my career.	3.1	1.27
LSI26	It feels as though my principal is constantly looking over my shoulder, waiting for me to make a mistake. (corrected for negative slant)	3.7	1.26
LSI35	I feel we are moving backward in terms of our procedures. We are stagnating, and to an extent even degrading. Change is therefore happening, but in a negative direction. (corrected for negative slant)	2.8	1.22
LSI13	Acts of commission are applauded and acts of omission developed, i.e. intelligent mistakes are dealt with less harshly in the interest of personal and professional growth.	3.1	0.65

As Table 24 indicates, a larger than average deviation denotes large discrepancies between individual follower ratings, with a smaller than average deviation denoting more unanimous ratings. Variables included in Table 24 conform to $0.75 \geq SD \geq 1.2$. Figure 15 illustrates the addition and subtraction of the individual SD values for each LSI question:

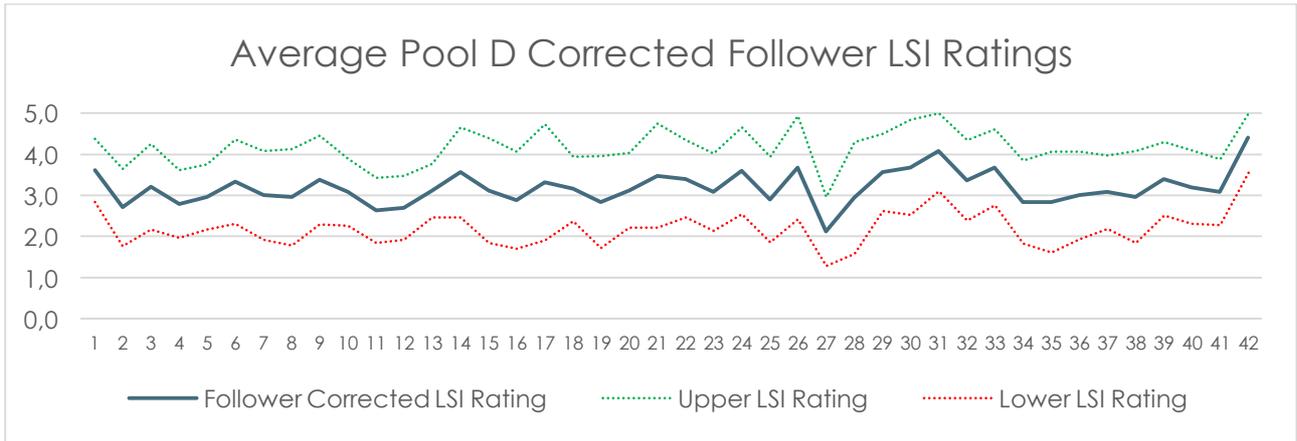


Figure 15: Average Corrected Follower LSI Ratings with SD applied (Pool D)

Figure 15 once again clearly illustrates the questions with both higher and lower levels of unison amongst follower ratings.

b) Effect of rating discrepancy on morale

The effect of the average *LSI_D* discrepancy for each questionnaire is now compared to each follower’s rating of *PW3_Morale* on the same questionnaire to ascertain whether there is pool-wide a relationship, and if so what the nature of such relationship is. To accomplish this, a Spearman’s r_s correlation is calculated for each *LSI* question, and attached in Appendix D.

It is clear from the negative values presented in the correlation values for all four pools that a larger average *LSI_D* discrepancy value per questionnaire results in a lower *PW3_Morale* rating for the same questionnaire. Values indicated in red are statistically significant ($\rho < 0.05$), which signifies a 76% statistical significance to this relationship for Pool A, 33% for Pool B, 23% for Pool C and 74% for Pool D across each questionnaire.

To illustrate the relationship, between *LSI_D* and *PW3_Morale*, the average *LSI_D* values from *LSI2_D* for each pool are plotted against their respective *PW3_Morale* values:

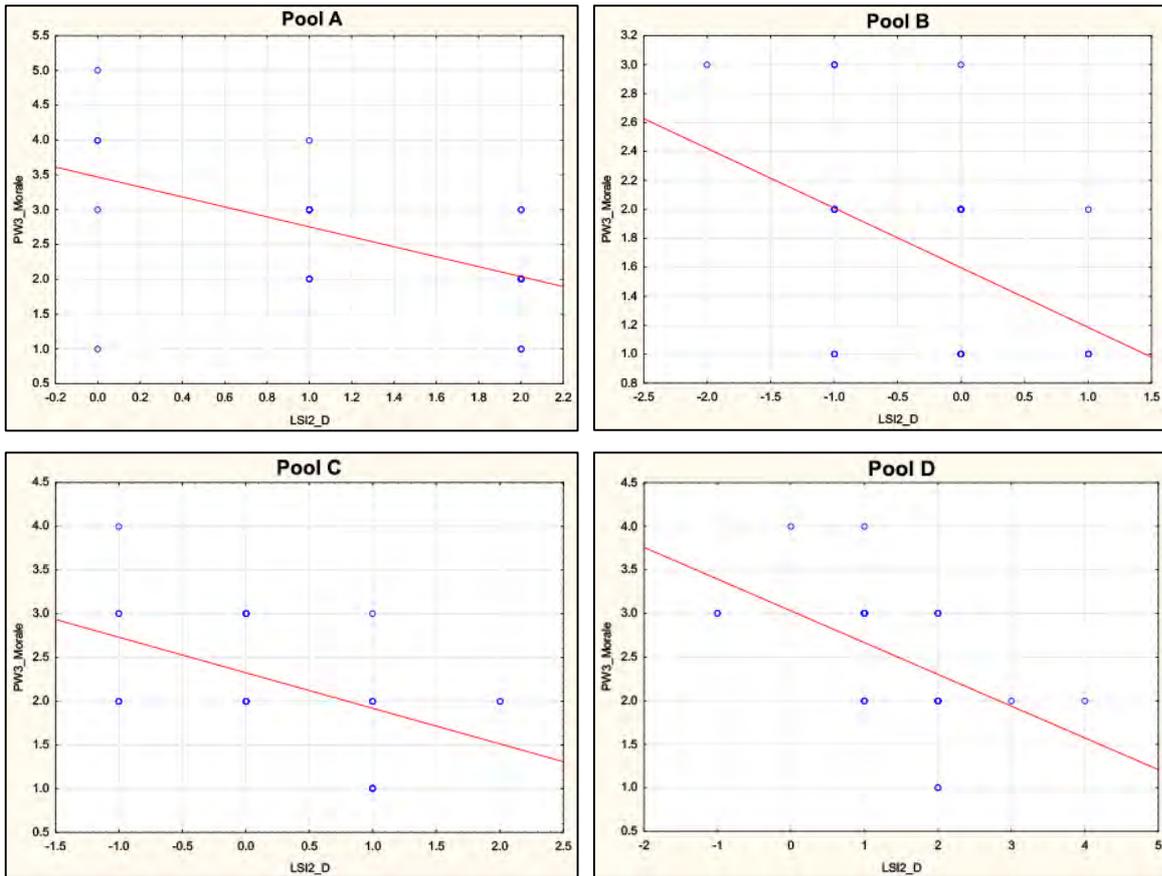


Figure 16: *LSI2_D* versus *PW3_Morale* correlations for each pool

Figure 16 unambiguously demonstrates the negative relationship between *LSI_D* and *PW3_Morale*: The greater the negative discrepancy between leader and follower attribution perceptions (in other words the more the leader over-estimates follower perceptions of his or her attributions), the lower the value for pool morale becomes.

c) Attribution rating results

The average follower ratings and leader ratings for each attribution (as conceptualised in Table 3, described in Table 4 and defined Table 10) are attached in Appendix D under ‘Pool Specific Attribution Summary’. The results are graphically illustrated as follows:

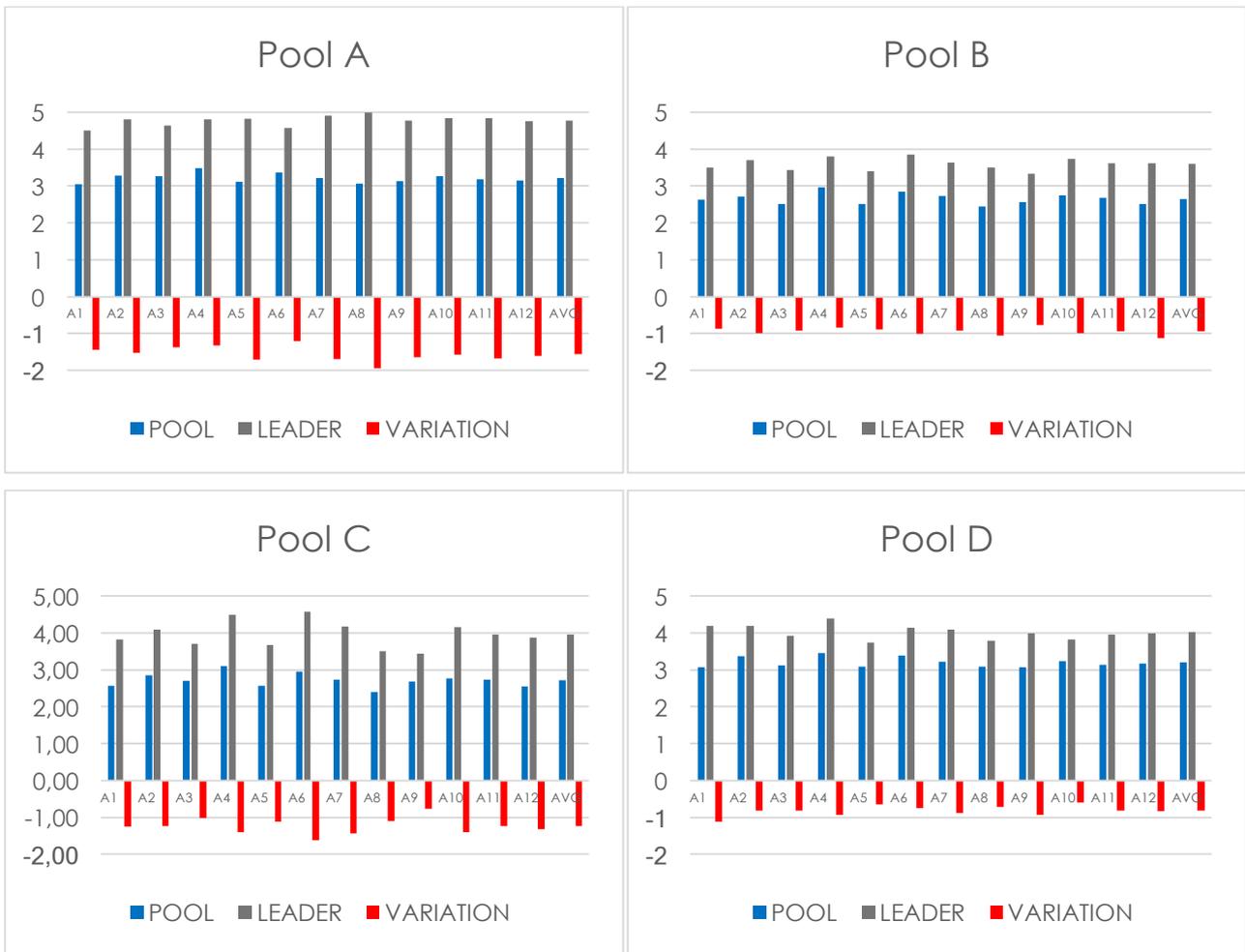


Figure 17: Attribution Rating Result Summary

As Figure 17 shows, there is not a single leader with any attribution perceived and rated more positively by followers than by his- or herself. For Leader A, *A8_Openness* is particularly problematic and Leader C has particular trouble with *A6_Loyalty*, whereas Leader B and D show much more awareness of follower perceptions across all attributions, even though they still over-rate their followers' perception of their attributions by some margin.

d) Effect of age on morale

When comparing the age group of followers (*EP1_AgeGroup*) to the average level of morale (*PW3_Morale*) per age group, an interesting phenomenon emerges:

Table 25: Comparison of average *PW3_Morale* value per *EP1_AgeGroup* category

<i>EP1_AgeGroup</i>	<i>PW3_Morale</i> MEAN	<i>PW3_Morale</i> n	<i>PW3_Morale</i> SD
20-29	2.938	16	0.574
30-39	2.288	52	0.915
40-49	2.033	30	0.890
50-59	1.750	4	0.500

It is apparent from the information contained in Table 25 that an increase in follower age equates to a decrease in follower morale level rating.

5.4.3 Qualitative analysis of supplementary data

This section provides richness of meaning to the data obtained in section 5.4.2 by providing circumstantial evidence to explain appropriate phenomenological aspects and thereby achieve the second research objective. Qualitative supplementary data was obtained during interviews with leaders by means of the ‘Contextual Information” section of the leader questionnaire. Semantic similarity frequency coding was applied to analyse leader responses to interview questions. Recordings and transcripts of all interviews, whilst available from the researcher for cross-referencing, are not included in this report in the interest of anonymity.

To apply the principles of semantic similarity frequency coding, transcripts of individual interviews were analysed for the number of times a certain word occurs by means of NVivo software, developed by QSR International (2016) and used worldwide to aid in analysis of qualitative datasets. These words were then coded for analysis using the semantic similarity frequency chart developed by Coetzee (2015b), and a word cloud (generated by using NVivo software (2016)) is provided to graphically illustrate the ranking of various concepts mentioned in the interview, with larger words occurring more frequently.

i. Leader A interview

After transcript analysis, the five most mentioned words in the interview with Leader A is shown in the semantic similarity frequency chart as follows:

answering the research question. Finally, this chapter analysed the supplementary data obtained from transcripts of leader interviews qualitatively, and in doing so addressed the second research objective. The next chapter will critically analyse the research results, synthesise it with the available literature mentioned in Chapter 3, as well as make conclusions and recommendations based on this analysis.

CHAPTER 6: ANALYSIS, SYNTHESIS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter offers an analysis of the research results by triangulating the quantitative and qualitative data detailed in Chapter 5, and auto-ethnographically scrutinising it before considering positive aspects through the lens of Appreciative Inquiry (AI). It then offers a synthesis of the findings in the context of the research problem, question and objectives, as well as against the research hypothesis, after which conclusions and recommendations, as well as possible future recommendations for future research are presented.

6.2 Analysis and interpretation

Findings in this research were acquired from a parallel mixed methods research design, which implies the simultaneous collection of quantitative and qualitative data. Data is now merged by means of triangulation and analysed auto-ethnographically to obtain a richness of meaning that would be lacking had a purely quantitative or qualitative approach been followed (Holland, 2009). AI is subsequently utilised to find positive aspects for leaders and followers to focus on when changing the current *status quo*.

6.2.1 Triangulation: Auto-ethnographical Interpretation of Results

The quantitative and qualitative research results for each leader are triangulated and contextualised, providing a platform from which the research question problem can be addressed, research question answered, hypothesis proven and research objectives achieved. The results are then scrutinised auto-ethnographically through the researcher's experiences and understanding of the human dynamics present within the researched centre, to add depth of meaning. Care has been taken to avoid bias, by largely drawing from interaction and discussion with colleagues on issues where uncertainty presented itself, before including and synthesising it here.

a) Pool A

It seems peculiar that Leader A rates *EW3_Leadership* lower than the followers' rating, as all other aspects are rated overtly high. This is in fact the very cause of the very high *LSI_D* values (average *LSI_D* = -1.4) in Pool A, which make the results appear exceedingly dire at first glance. If examined closely, however, it appears that the average *LSI* values for each question of the questionnaire is significantly higher than that of the other pools, indicating that the followers rate leader attributions higher than how their peers rate their respective

leaders' attributions. Pool A also rates their morale to be the best of the four pools in the researched centre (average *LW3_Morale* value is 2.6). Despite these high *LSI* values, the large overestimation of follower attribution ratings still causes the morale to be lower, even if the negative slant of the plotted relationship is much flatter than that of other pools, as selectively illustrated in Figure 16.

Leader A was very succinct and to the point in the interview, but not in a negative way: he seemed in control and appeared to not feel the need to justify any answers. 'Change Management', 'delegate' and 'communication' was mentioned several times during the interview, with 'delegating' mentioned as a weakness, and 'communication' as a strength. When scrutinising the attribution averages in Appendix D, the attributions with highest variations from follower ratings are noted as being openness, leadership, morality and repute, which are areas that Leader A needs to work on if the situation wants to be improved.

The questions with the highest *LSI_D* values are listed in Table 13. *LSI15*, *LSI19*, *LSI18*, *LSI28* and *LSI38*'s presence in this list, as well as the researcher's auto-ethnographic judgement during interview and interaction with followers, point to the presence of the Dunning-Kruger effect to some extent: Leader A severely over-estimates follower perception of leader attributions, as well as overall pool happiness and morale.

LSI27 is also pertinent, as Pool A has a long history of feeling inferior to other pools as a result of various well-known factors beyond the scope of this research. Leader A should see the large *LSI_D* value for *LSI34* as incentive to implement the recommendations stemming from this research as a matter of urgency. The low discrepancies in *LSI17*, *LSI26* and *LSI3* confirm the feeling amongst ATCOs in the researched centre that Pool A is the happiest pool with the least amount of strife. There is an almost unanimous feeling that Leader A does not constantly look over pool members' shoulders waiting for them to make a mistake, which bodes well for positive change.

b) Pool B

At 1.7 out of 5, Pool B has the lowest average *PW3_Morale* rating of all the pools by some margin. Pool C was the closest at 2.2 out of 5. Leader B answered very neutrally, rating *LSI* questions 3 out of 5 for 33% of the 42 questions, and resulting in an average *LSI* answer of 3.57 out of 5, which is slightly on the higher side of neutral on the Likert scale. Pool members followed suit, with 36% of total ratings being 3 out of 5 and an average rating of 2.7, which

is slightly on the lower side of 3 on the Likert scale. Thus, despite a higher average level of *LSI_D* matching ($LSI_D = -0,9$), it is as a result of neutral ratings more than leader intuition.

Leader B mentioned 'people', 'pool' and 'trying' several times in the interview, indicating a partiality towards the pool and a sincere effort to improve the situation for them. Leader B seemed genuinely concerned about the state of the pool during the interview, as well as determined to sort out issues that affect it. 'Openness', 'Leadership', 'Morality' and 'Repute' are the most troublesome attributions, but the discrepancy for all attributions is lower than that of other pools, once more a result of neutral ratings.

Leader B had been in the position of leader less than two months at the commencement of data collection. The researcher opines that this is the reason for the neutral ratings from both leader and followers: Leader B has not built up enough of a track record or relationship with the pool to be meaningfully rated as a leader. Leader B had been a member of Pool B before being appointed as pool manager, and was appointed (in the opinion of numerous ATCOs at the researched centre) despite several more qualified candidates applying. This put him at the disadvantage of having to overcome much doubt about his ability and experience levels (he had only been in the pool for less than a year before his appointment to lead it) before even beginning to resolve any issues that are problematic within the pool, and explains the high *LSI_D* in question *LSI20*.

The low follower *EW3_Morale* level stems directly from historical issues detailed in section 2.3, dangerously low staffing levels and being leaderless for over one year, and is reflected in *LSI17* results – pool members are deeply unhappy. Whilst this research could possibly be slightly futile for Leader B, repeating the exercise in a year's time could be most beneficial, and at least provide guidance in terms of what is required to elevate the abysmal current state of morale within Pool B.

c) Pool C

The high correlation between follower and leader ratings for *PW3_Morale* indicates that Leader C has an exceptional understanding of the low level of morale (second lowest of all the pools) in the pool. Leader C over-estimates *PW5_Energy* by some margin, and thinks that the pool is happier than what is actually the case. The high *LSI_D* values for *LSI20*, *LSI21* and *LSI32*, combined with the two most problematic attributions ('loyalty' and 'morality') paint a follower perception picture of someone that is not as present in the position

as would ideally be required. This could be indicative of either higher ambitions, thus catering to such needs instead of the needs of the current position, or boredom with the current position resulting in the redirection of attention elsewhere. Whatever the cause of this phenomenon, Pool C picked up on the fact that Leader C is somewhat preoccupied, which manifests in a problem with follower perceptions of the 'trust' attribution, as indicated in Table 19.

During the interview, 'people' had the highest semantic similarity frequency, followed by 'issue', 'understanding' and 'work', which seem to indicate that Leader C does place his pool high on the priority list. This possibly explains the high average *LSI_D* value ($LSI_D = -1.24$): Leader C is unaware of his preoccupation, and thinks that he is doing the best that he can for the pool and placing his people first, when the experience of the pool is quite different. This once again indicates a minor occurrence of the Dunning-Kruger effect, which could grow into a deep-seated and powerful occurrence if left unchecked. There is a high correlation of follower and leader perception for *LSI12*, which Leader C can use in his favour to turn things around.

d) Pool D

Leader D seems to be very much in touch with the perceptions of Pool D, which is reflected in the remarkably low average *LSI_D* value ($LSI_D = 0.7$). Like Pool A, relatively neutral ratings are received from followers, although here there is some deviation present, in a few followers giving very low and a few followers very high average *LSI* ratings. This is indicated in the high SD value for responses ($SD = 1.0$), and points to the presence of divided opinions regarding leader attributions. To illustrate the point: Out of 25 followers, even though the average *LSI* rating is 3.2 out of 5, only a total of three followers gave an average *LSI* rating of 3.2, whilst 16 rated lower and 6 rated higher. The six higher average ratings are considerably higher to compensate for the large amount of lower ratings, thereby keeping the average at 3.2. This indicates the presence of a small group of devoted followers, with the remainder either undecided or decidedly discontented, and seems to be mirrored by the high level of *LSI_D* present in the 'fairness' attribution as well as in *LSI3*, *LSI9* and *LSI32*. The high SD in *LSI28* ($SD = 1.36$, which almost places responses at the opposite end of the Likert scale), as well as several mentions in the interview of consulting a core group of followers to solve certain problems are the final indications of the presence of this phenomenon.

The 'conscientiousness', 'professionalism' and 'morality' attributions also show high discrepancies, and the low average follower rating of $LSI27 = 2.1$ indicates a pool-wide feeling inferiority towards other pools. During the interview, 'people', 'person' and 'company' show high semantic similarity frequency, more than once in the context of "people need to do what the company wants, or it will go on without them". The high occurrence of the word 'people' indicates an awareness of follower importance in the leadership equation. The interview was insightful and sincere, and once again it is postulated that perhaps Leader D is unaware of the rift that is present in follower opinions. Leader D has been leading the pool for a number of years, and mentions that initial attempts of 'pleasing everybody' drained his own energy and became impossible to sustain. It is clear from this research that unfortunately the pendulum has now swung too far the other way.

Pool D is notoriously over-regulated, with additional procedures or modifications to procedures implemented every time somebody makes a mistake, which, along with everything else mentioned here points to the applicability of the Peter Principle in this instance. It's not all doom and gloom, however. Pool D is one of the youngest pools in the researched centre, and harnessing this in the context of section (e) below should mean that it will be easier for Leader D to turn the morale around than it would perhaps have been the case an older pool.

e) General remarks

There is a noticeable trend (summarised in Table 25) for *PW3_Morale* to decline with an increase in *EP1_AgeGroup*. When analysing this phenomenon auto-ethnographically, it can be attributed to the attrition in energy and happiness that results from a negative environment such as the one present in the researched centre (as annotated in section 2.3). Even the most positive-minded individual will start to feel the effects of such an environment after spending some time in it, and the longer the duration, the more it affects happiness, energy and morale levels. With the researched centre generally being a place where ATCOs countrywide end up after aspiring to get there for some time, there is little to no movement away to other centres once somebody is stationed there. As such, young ATCOs spend the majority of their careers at the researched centre, and literally 'grow old' there, which results in the attrition of morale evident in Table 25 in the long term.

Across all pools, the feeling amongst both followers and leaders are that this research is necessary ($LSI42 = 4.54$ for followers and $LSI42 = 4.67$ for leaders), indicating a feeling

amongst both sets of respondents that there is a definite need to investigate specific segments of their relationship.

6.2.2 Appreciative Inquiry (AI) analysis

Utilising the 4-D model for change detailed in Figure 3, the positive aspects identified by this research (by means of interaction with staff at the researched centre) to enable the change towards a superior future state for the researched centre are:

Table 30: Appreciative Inquiry Analysis for Researched Centre

Discovery	'Life-giving properties'	<p>Communication is the lifeline of the researched centre, and should be at the centre of everything that gets done.</p> <p>People are yearning to be listened to and appreciated.</p> <p>ATC is all about consistency – doing the same thing regardless of circumstances. Leadership should understand how important this is to ATCOs, and act accordingly.</p> <p>There is a great need for development.</p>
Dream	'What <i>can</i> be'	<p>People are developed to become more than what they are, and leadership is changed frequently as people move on to higher places after giving it their all in the researched centre.</p> <p>There is frequent and accurate communication surrounding all aspects that affect staff, and they are regularly appreciated for their efforts.</p> <p>Leadership is consistent in what they say and do, and consistently present.</p>
Design	'How to get there'	<p>Organisational buy-in is required, which entails a realisation of the current state of affairs by upper management.</p> <p>Informed staff are happy staff – a culture of information sharing (good or bad) needs to be created and fostered.</p> <p>Appreciation does not always mean monetary reward – creating a culture of simply saying 'thank you' will have tremendous results.</p>
Destiny	'How to stay there'	<p>Entrench these principles in the culture of the researched centre by constantly and consistently applying the mentioned principles.</p>

Whilst analysing a problem using AI is a research project all on its own, the goal of this section is simply to add a meaningful amount of positive value by providing something for the researched centre to strive for.

6.3 Synthesis

The research findings are now integrated in terms of the research problem, hypothesis, research question, research objectives and related to the findings of other research as revealed in the literature review.

6.3.1 Research problem

The research problem for this study is defined in section 1.3 as:

a) Sub-problem 1

To what extent does the way in which leaders think that their followers perceive them differ from how they are actually perceived?

In the case of all four pools, as detailed in section 5.4.2, the average follower perception of leader attributions is lower than how leaders think they are being perceived. All attribution ratings have the same negative slant, as listed in Appendix D and illustrated in Figure 17.

b) Sub-problem 2

If a discrepancy between follower perceptions and leader opinions of follower perceptions exists, what is the relationship between this discrepancy and the level of follower morale?

The relationship between the discrepancy of follower perceptions and leader opinions of follower perceptions (*LSI_D*), and the levels of morale in the pool (*EW3_Morale*), contained in Spearman's Rho correlations attached as Appendix D and selectively illustrated in Figure 16, can be described as follows:

The greater the discrepancy between follower perceptions of leader attributions and leader opinions of follower perceptions when the value of the latter exceeds that of the former, the lower the level of follower morale becomes. Thus, if a leader over-rates follower perceptions of his or her attributions it results in lower follower morale in the pool, and the higher the level of over-rating, the lower the level of morale.

6.3.2 Hypothesis

The hypothesis for this research is stated in section 4.2.2 as:

Incongruence may exist between follower attributions and leader perceptions of follower attributions within the various pools in the researched ATC centre, and such a discrepancy could result in lower perceived levels of morale of ATCO followers within their pool.

The research results obtained from administering the research instrument to the researched population using the specified method conclusively proves in section 5.4.2 that there does indeed exist incongruence between follower attributions and leader perceptions of follower attributions within the researched ATC centre. Additionally, it is proven by section 5.4.2 of this research that the larger this discrepancy is (when leader perceptions are higher than actual follower attributions), the lower the levels of morale in the pool becomes. The hypothesis is thus proven to be correct and true.

6.3.3 Research question

The research question for this study is noted in section 1.4 as:

a) Research question 1

Are the opinions of the various pool managers on how their followers perceive them consistent with how their followers actually perceive them in the researched company centre?

Pool manager opinions of follower perceptions vary greatly from actual follower perceptions. In the case of all four pools (as detailed in section 5.4.2), the average follower perception of leader attributions is lower than leader opinions of follower perceptions. All attribution ratings have the same negative slant, as listed in Appendix D and illustrated in Figure 17.

b) Research question 2

If these opinions are not consistent, what are the differences and what effect do they have on the perceived level of morale within the pool?

The differences, as well as their effect on morale are detailed in section 5.4.3. The more negative these differences, the lower morale becomes (illustrated selectively in Figure 16). Therefore, if a leader's opinion of follower perceptions is over-inflated, it results in lower follower morale in the pool, and the more over-inflated such opinion, the lower the level of morale.

6.3.4 Research objectives

The research objectives are noted in section 1.2 as:

a) Research objective 1

To provide ATC managers in the researched company centre with unbiased feedback regarding the way in which their followers perceive their leadership style by comparing follower attributions to leader perceptions of follower attributions.

Appendix M and N contain examples of the detailed feedback provided to ATC managers. Great care was taken throughout the research process to eliminate bias from data gathering, results as well as feedback. Feedback was given to all four pool managers, as well as every single participant in the research, thus achieving the first research objective.

b) Research objective 2

To suggest possible causes for the differences (if any) between how these ATC managers think they are being perceived by their followers and how they are actually being perceived, thereby allowing these to be eradicated and improving follower morale.

Causes for differences in leader and follower perceptions are discussed in Chapter 5 and analysed in Chapter 6, thus achieving the second research objective.

6.3.5 Applicability to literature review concepts

Research can only make a valuable contribution to the body of knowledge if a stated need for the findings that it produces exists, whether it is noted or not. This research produces findings that satisfy the following noted needs, stated in Chapter 3:

Table 31: Applicability of Research to Literature Review Concepts

Research Need	This Research
<i>Feldman (2016:12) recommends that 'a pilot study making use of qualitative and mixed method research can be launched in South Africa to test follower experiences of leader behaviour in a setting where follower-leader dynamics are critical'.</i>	The ATNS researched centre provides exactly such an environment (follower-leader dynamics are critical to ensure safety in an ATC environment (Joubert, 2014)), and this research tests this exact phenomenon in the precise way specified.
<i>Goleman (2004) notes that leaders with a high self-awareness display a gracefulness in learning about their shortcomings, and therefore should welcome both feedback into follower attributions as well as constructive criticism.</i>	The feedback provided by this research is attached as Appendix M and N, and it is hoped that it will add value for both the leaders and followers.
<i>Joubert (2014) records a future research possibility as instructing followers to analytically grasp and appraise leadership performance.</i>	This study provided just such an opportunity for the ATCO followers at the researched centre.

This research therefore appends its findings to the body of knowledge with the confidence that a need for its findings does indeed exist.

6.4 Research conclusions

The most important thing we do as (organisational development) consultants is inquiry. We try to read situations, we do organisational analysis and diagnosis. It all starts with inquiry. The key point is that the way we know is fateful. The questions we ask, the things that we choose to focus on, the topics that we choose determine what we find. What we find becomes the data and the story out of which we dialogue about and envision the future. And so, the seeds of change are implicit in the very first questions we ask! Inquiry is intervention.

Cooperrider (1995)

Following on the compelling stance of Cooperrider, this research inquired about the relationship between follower perceptions of leader attributions and how leaders think their attributions are being perceived by followers, and came to the following conclusions:

1. There is low morale present amongst followers in the researched centre.
2. There is a distinct difference between how leaders think followers perceive their attributions, and how followers actually perceive them.
3. This difference is typically negative, signifying that leaders predominantly over-estimate follower attribution ratings.
4. The more leaders over-estimate the perceptions that followers have of their attributions, the lower morale levels become.

6.5 Recommendations

This research makes the following specific recommendations to leaders to reduce the difference between leader and follower perceptions of leader attributions, and thereby increase morale:

1. Leader A has an inflated image of followers' attribution perceptions, and this research should enable him to have a more accurate picture of what the followers are actually feeling. With the high average *LSI* values that already exist within the pool, toning down the leader perceptions and thereby narrowing the *LSI_D* gap, as well as addressing the problematic 'openness' and 'morality' attributions should have a substantially positive effect on pool morale, and in the process automatically decrease the difference between follower and leader perceptions of the 'leadership' attribution.
2. Whilst Leader B is relatively new to the leadership role, there is much to take from this research in terms of what is required to lift the morale of followers – something that is gravely required in Pool B. It is recommended that Leader B focusses on fostering trust by communicating openly and honestly at all times, doing it often and consistently and being more visibly present. Whilst encouragement is difficult in short-staffed situations, a simple 'thank you' goes a long way and will assist in motivating staff to stay employed in the company.
3. It is time for Leader C to either move on to a more challenging portfolio for both his and the pool's good, or realign priorities in the light of this research if he wants and intends to remain in the current pool manager position. This is highly possible, as the current state of preoccupation (as interpreted in section 6.2.1) is possibly just a result of not recognising its presence nor the fact that it is starting to become evident.

4. Leader D should use his high levels of empathy and intuition to find the middle ground between being too involved with all followers and only involving a select few. Success here lies not only in decreasing the average *LSI_D*, but in bringing follower responses on the two ends of the Likert scale closer together, and thereby creating one team.
5. ATNS should consider training sessions with the researched centre's pool managers on how to improve problematic attributions, as well as providing them with all the necessary support and guidance required for successfully undertaking the mammoth task of lifting the chronically low morale in the researched centre.
6. ATNS should endorse this research project as relevant and timeous.

An example of feedback given to pool managers regarding the outcome of the research is attached as Appendix M, and feedback to followers as Appendix N. Anonymity for leaders in feedback to followers was ensured at all times by giving average (and not specific) feedback to followers. This feedback should empower pool managers to derive value from their participation in this research by allowing them to focus on and improve their attribution weaknesses, and the hope is that this will contribute to higher morale within the researched centre in the not too distant future.

6.5.1 Improvements on the research

Hindsight is always perfect, and there are always aspects of any research that can be improved. In this case, *LSI₄₀* and *LSI₄₁* can be improved to include a negative or positive component. It is not presently clear whether the rating received was given in a positive or negative sense, and a lot of additional insight could have been gained had this been done prior to administering the questionnaires.

6.5.2 Future avenues of inquiry

Investigation into the effect of upper management on the morale within the researched centre, as well as the influence of the communication gap that exists between head office and the researched centre on morale is suggested as future research opportunities that will shed further light on the researched situation. Thought also needs to be given to the fact that the results of this research indicate an opportunity for further research into the interaction between middle- and upper-management in a similar leader-follower fashion. The research problem may be a result not of middle management themselves, but perhaps of them simply slavishly implementing policy or accepting instructions from above. The low morale in the researched centre could also be due to various other causes such as working

conditions, unhappiness with upper management (not middle management), compensational disagreements and company policy issues, all of which warrants further examination.

6.6 Concluding perspective

This chapter analysed the research results by triangulating the quantitative and qualitative data detailed in Chapter 5, and auto-ethnographically scrutinising it before considering positive aspects through the lens of AI. It proceeded to synthesise the findings in the context of the research problem, question and objectives, as well as against the research hypothesis, after which conclusions and recommendations, as well as improvements to the research and possible future recommendations for research were presented.

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Appendix A: Leader interview questionnaire

LEADER PROFILE (STRICTLY CONFIDENTIAL)

AGE GROUP	20-29	30-39	40-49	50-59	60+
CURRENT LEADERSHIP ROLE	ACCCEW	ACCNS	APP	TWR	
GENDER	FEMALE		MALE		
HIGHEST QUALIFICATION	ATNS ONLY	COLLEGE UNIVERSITY	QUALIFICATION OBTAINED: (PLEASE SPECIFY)		
YEARS OF EXPERIENCE WITHIN COMPANY		YEARS		MONTHS	
YEARS OF EXPERIENCE IN POOL (PRIOR TO MANAGING)		YEARS		MONTHS	
YEARS OF EXPERIENCE IN POOL (MANAGING)		YEARS		MONTHS	

POOL WELLBEING

Please rate (in your opinion) the current level of the following within your pool:

		POOR	BELOW AVERAGE	AVERAGE	ABOVE AVERAGE	EXCELLENT
NO	VARIABLE	1	2	3	4	5
1.	UNITY					
2.	HAPPINESS					
3.	MORALE					
4.	POOL LEADERSHIP					
5.	POSITIVE ENERGY					

CONTEXTUAL INFORMATION

1.	Do you have any role models or significant influencers? If so, who are they?	
2.	What is it within your career that you are passionate about? What motivates you?	
3.	Why are you motivated by the items listed under question 2?	
4.	Why do you want to lead?	
5.	Do you consider yourself to be someone that members of the pool look up to? Why?	
6.	What do you consider to be your professional strengths relating to morale management of pool members?	

7.	What do you consider to be your professional weaknesses relating to morale management of pool members?	
8.	What has been your most difficult pool morale-related challenge to date, and how did you deal with it?	
9.	What did you learn from this particular challenge?	
10.	What do you consider to be key developmental areas for you relating to morale management of pool members?	
11.	What is the current state of the morale within your pool? What do you consider to be the major causes for this state?	
12.	SCENARIO: You have to implement and enforce an unpopular new procedure. What approach would you use?	

LEADERSHIP STYLE INVENTORY

		NEVER	ALMOST NEVER	SOME-TIMES	ALMOST ALWAYS	ALWAYS
NO	QUESTION/SITUATION	1	2	3	4	5
1.	My pool members consider me to be a true professional.					
2.	Our pool is noted for its efficient and effective management and leadership.					
3.	I duly recognize and reward my pool's personal and professional efforts and contribution.					
4.	Pool members are encouraged to be innovative, creative and original and not merely conformist.					
5.	I am generally respected by all my pool members.					
6.	My pool members regard me as a person with unquestionable ethics, morality and general conduct.					
7.	I feel that I succeed to integrate a functional team, i.e. my loyalty is first experienced within the pool.					
8.	My pool members consider me to be a person of stature, standing and status, which they admire and commend.					
9.	My pool members consider my lifestyle, conduct and integrity both personally and professionally to be complementary and mutually inclusive.					
10.	There is positive movement within our pool, and we are constantly moving forward in both the streamlining of our procedures and the way in which we deliver our service.					

		NEVER	ALMOST NEVER	SOME-TIMES	ALMOST ALWAYS	ALWAYS
NO	QUESTION/SITUATION	1	2	3	4	5
11.	Our pool functions more like a political <i>parliament</i> than a centre of service excellence.					
12.	Pool members are stimulated to explore, investigate and propagate own ideas and processes with minimal interference.					
13.	Acts of commission are applauded and acts of omission developed, i.e. intelligent mistakes are dealt with less harshly in the interest of personal and professional growth.					
14.	I am proud to belong to my pool.					
15.	My pool members are proud to be associated with me and feel that such association will enhance their careers.					
16.	My pool members feel that I personify the truth and trust that constitute the ethics of our pool.					
17.	My pool members would find alternate employment if they could.					
18.	I am fully aware of the spirit within and the morale of the pool and team.					
19.	My pool members feel that I have an everlasting legacy and impact and will be remembered for this effect.					
20.	My pool members see me as a person always surrounded by controversy.					

		NEVER	ALMOST NEVER	SOME-TIMES	ALMOST ALWAYS	ALWAYS
NO	QUESTION/SITUATION	1	2	3	4	5
21.	My pool members see me as preoccupied with status and driven by power.					
22.	My pool members feel that communication emanating from me constantly keeps everybody fully informed.					
23.	I meet regularly with the pool (constructive interface) during which we strategise, review performance and shape focus.					
24.	My pool sees me as too busy to truly care for them.					
25.	Pool members feel as though they personally benefit because of me and my style of leadership.					
26.	Pool members feel as though I am constantly looking over their shoulders, waiting for them to make a mistake.					
27.	As a pool we are admired and respected by others.					
28.	My pool believes everybody would benefit from another/better principal.					
29.	I always do what I promise to do.					
30.	My pool members feel that they can count on my full and unconditional support in the event of an honest mistake on their side.					
31.	My pool members know that I will not tolerate willful procedural breach.					
32.	I consistently "practice what I preach".					

		NEVER	ALMOST NEVER	SOME-TIMES	ALMOST ALWAYS	ALWAYS
NO	QUESTION/SITUATION	1	2	3	4	5
33.	My pool members feel that I always treat safety events as an error until the contrary is proven. They therefore feel comfortable that they will always be considered innocent until proven guilty.					
34.	Pool members feel that I address issues within the pool that hamper service delivery or lower morale as a matter of urgency, and resolve them as soon as possible.					
35.	I feel we are moving backwards in terms of our procedures. We are stagnating, and to an extent even degrading. Change is therefore happening, but in a negative direction.					
36.	My pool knows that I occupy the majority of my time with things that truly matter to them as a pool.					
37.	My pool affords me unqualified respect and support.					
38.	My pool has complete trust that I am steering our pool in the right direction.					
39.	My pool knows exactly what is expected of them on a daily basis. There are very few gray areas.					
40.	The leadership standard in our pool is comparable to that of most pools in the company as a whole.	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
41.	The morale in our pool is comparable to that of most pools in the company as a whole.	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
42.	This research is very necessary.	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE

Appendix B: Follower survey questionnaire

LEADERSHIP STYLE EFFECTIVENESS RESEARCH QUESTIONNAIRE

As part of my MBL studies I am conducting research into the perceived effectiveness of leadership styles at pool level within the FAOR centre by asking the same set of questions to both leaders and pool members, and comparing the answers. Please assist me in this worthy cause by taking the time to answer the following questions honestly and thoroughly. Your answers will remain confidential as well as completely anonymous, and will greatly assist in gauging the level of leadership style effectiveness within the centre.

EMPLOYEE PROFILE (PLEASE MARK WITH AN X)

AGE GROUP	20-29	30-39	40-49	50-59	60+
CURRENT POSITION	ACCCEW	ACCNS	APP	TWR	
GENDER	FEMALE		MALE		
HIGHEST QUALIFICATION	ATNS ONLY	COLLEGE UNIVERSITY	QUALIFICATION OBTAINED: (PLEASE SPECIFY)		
YEARS OF EXPERIENCE WITHIN COMPANY		YEARS		MONTHS	
YEARS OF EXPERIENCE WITHIN POOL		YEARS		MONTHS	

POOL WELLBEING (PLEASE MARK WITH AN X)

Please rate (in your opinion) the current level of the following within your pool:

		POOR	BELOW AVERAGE	AVERAGE	ABOVE AVERAGE	EXCELLENT
		1	2	3	4	5
1.	UNITY					
2.	HAPPINESS					
3.	MORALE					
4.	POOL LEADERSHIP					
5.	POSITIVE ENERGY					

LEADERSHIP STYLE INVENTORY

(PLEASE MARK WITH AN X)

		NEVER	ALMOST NEVER	SOME-TIMES	ALMOST ALWAYS	ALWAYS
		1	2	3	4	5
1.	My principal is a true professional.					
2.	Our pool is noted for its efficient and effective management and leadership.					
3.	My personal and professional efforts and contribution are duly recognized and rewarded by my principal.					
4.	One is encouraged to be innovative, creative and original and not merely conformist.					
5.	My principal is generally respected by all his / her direct reports.					
6.	My principal is a person with unquestionable ethics, morality and general conduct.					
7.	The principal succeeds to integrate a functional team, i.e. his/her loyalty is first experienced within the pool.					
8.	The principal is a person of stature, standing and status, which I admire and commend.					
9.	The lifestyle, conduct and integrity of my principal both personally and professionally are complementary and mutually inclusive.					
10.	There is positive movement within our pool, and we are constantly moving forward in both the streamlining of our procedures and the way in which we deliver our service.					

(PLEASE MARK WITH AN X)		NEVER	ALMOST NEVER	SOME-TIMES	ALMOST ALWAYS	ALWAYS
		1	2	3	4	5
11.	Our pool functions more like a political <i>parliament</i> than a centre of service excellence.					
12.	We are stimulated to explore, investigate and propagate own ideas and processes with minimal interference.					
13.	Acts of commission are applauded and acts of omission developed, i.e. intelligent mistakes are dealt with less harshly in the interest of personal and professional growth.					
14.	I am proud to belong to my pool.					
15.	I am proud to be associated with my principal and such association will enhance my career.					
16.	Truth and trust constitute the ethics of our pool as personified by my principal.					
17.	If I could I would find alternate employment.					
18.	My principal is fully aware of the spirit within and the morale of the pool and team.					
19.	My principal has an everlasting legacy and impact and will be remembered for this effect.					
20.	Controversy surrounds my principal.					
21.	My principal is preoccupied with status and driven by power.					

(PLEASE MARK WITH AN X)

		NEVER	ALMOST NEVER	SOME-TIMES	ALMOST ALWAYS	ALWAYS
		1	2	3	4	5
22.	Communication emanating from the principal constantly keeps everybody fully informed.					
23.	We meet regularly with the principal (constructive interface) during which we strategise, review performance and shape focus.					
24.	My principal is too busy to truly care for me/us.					
25.	I personally benefit because of my particular principal and his/her specific leadership/management.					
26.	It feels as though my principal is constantly looking over my shoulder, waiting for me to make a mistake.					
27.	As a pool we are admired and respected by others.					
28.	I believe everybody would benefit from another/better principal.					
29.	My principal always does what he/she promises to do.					
30.	I can count on my principal's full and unconditional support in the event of an honest mistake on my side.					
31.	My principal will not tolerate willful procedural breach.					
32.	My principal consistently "practices what he/she preaches".					

(PLEASE MARK WITH AN X)

		NEVER	ALMOST NEVER	SOME-TIMES	ALMOST ALWAYS	ALWAYS
		1	2	3	4	5
33.	My principal always treats safety events as an error until the contrary is proven. I therefore feel comfortable that I will always be considered innocent until proven guilty.					
34.	Issues within the pool that hamper service delivery or lower morale are addressed by my principal as a matter of urgency, and resolved as soon as possible.					
35.	I feel we are moving backwards in terms of our procedures. We are stagnating, and to an extent even degrading. Change is therefore happening, but in a negative direction.					
36.	I feel as though my principal occupies the majority of his/her time with things that truly matter to us as a pool.					
37.	My principal enjoys unqualified respect and support.					
38.	I have complete trust that my principal is steering our pool in the right direction.					
39.	My principal makes it very clear as to what is expected of me on a daily basis. There are very few gray areas.					
40.	The leadership standard in our pool is comparable to that of most pools in the company as a whole.	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
41.	The morale in our pool is comparable to that of most pools in the company as a whole.	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
42.	This research is very necessary.	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE

Appendix C: Low morale contributing factors questionnaire

LEADERSHIP RESEARCH (Lonell Coetzee)

Thank you so much to everyone who participated in the research conducted by myself over the last few months. Your contribution is highly appreciated, and the high response rate will definitely assist in creating highly valid results that will hopefully be able to make a difference to the current status quo.

Whilst I will provide detailed, anonymous feedback very shortly, I would appreciate some assistance to ascertain the reasons for some of the ratings on the questionnaires that were received. I would be much obliged if you can answer the few short questions listed below, and provide as much (or as little) detail as you wish.

This feedback will be treated with exactly the same confidentiality as stipulated in the confidentiality clause signed by every single participating ATCO. **Without absolute confidentiality, this research will never succeed.** Thus, please be assured of total and absolute adherence to this principle at all times.

CURRENT POSITION	ACCCEW	ACCNS	APP	TWR
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The following table illustrates the average ratings of the listed concepts received from the **entire FAOR ATCO population**. As you will recall, this rating is out of a possible 5. Please provide as many possible causes for this rating in your opinion:

	AVERAGE RATING (OUT OF 5)	POSSIBLE CAUSES
UNITY	3,0	
HAPPINESS	2,5	
MORALE	2,0	
POOL LEADERSHIP	2,3	
POSITIVE ENERGY	2,3	

What, in your opinion, are the **causes** for the current **low morale** in the FAOR centre?

PLEASE RETURN TO MY BUDDY DRAWER WHEN COMPLETE

Appendix D: Essential data pool specific dataset

Pool A leader and follower rating summary:

VARIABLE	PW1	PW2	PW3	PW4	PW5	LSI1	LSI2	LSI3	LSI4	LSI5	LSI6	LSI7	LSI8	LSI9	LSI10	LSI11	LSI12	LSI13	LSI14	LSI15	LSI16	LSI17	LSI18	LSI19	LSI20	LSI21	LSI22	LSI23	LSI24	LSI25	LSI26	LSI27	LSI28	LSI29	LSI30	LSI31	LSI32	LSI33	LSI34	LSI35	LSI36	LSI37	LSI38	LSI39	LSI40	LSI41	LSI42						
FOLLOWER RATINGS (n=25)	3	3	2	1	2	3	2	5	4	2	3	4	3	4	3	3	4	3	3	3	3	1	3	3	3	4	3	4	2	3	2	2	4	3	5	4	4	5	4	3	2	3	3	4	2	3	5						
	4	4	1	1	3	2	2	3	1	1	4	2	1	2	1	4	2	4	5	1	1	5	4	3	4	5	1	3	2	2	3	2	2	3	5	3	3	3	5	2	3	2	2	2	3	4	4	5					
	5	4	4	4	4	5	4	4	4	4	4	4	4	4	4	5	2	4	4	5	4	4	3	4	3	1	1	4	4	2	3	1	3	2	4	4	4	4	4	4	4	4	4	4	4	4	5	2	5				
	3	3	2	2	3	3	2	3	2	2	3	3	1	3	2	3	2	3	2	3	3	2	2	2	2	2	2	2	2	2	2	3	3	2	3	4	1	2	3	3	2	2	2	2	2	3	4	5					
	4	3	3	4	4	3	3	3	3	3	4	4	3	3	4	3	4	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	1	3	5	3	2	4	2	1	3	4	2	2	3	2	3	4	4	3			
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	3	3	3	3	3	3	3	3	4	4	3	3	3	4	3	4	2	4	4	4	4	3	3	1	3	3	3	3	3	4	2	3	2	3	3	4	4	5	3	4	4	2	3	3	3	5	3	3	4				
	3	2	2	1	1	3	2	2	2	2	3	3	3	2	2	2	4	2	2	3	2	2	4	4	3	1	4	3	2	4	2	3	2	4	3	3	4	3	3	2	3	3	3	3	3	3	3	3	4				
	5	5	5	4	5	5	4	5	5	5	5	5	5	5	5	5	2	4	4	5	5	5	1	4	4	1	4	5	1	4	5	1	4	5	2	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4			
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	2	3	3	3	2	3	2	3	3	3	4	4	3	3	4	3	4	3	3	4	4	4	4	3	3	3	2	4	4	4	4	3	3	1	3	2	4	4	5	3	5	2	4	3	4	3	4	3	2	2			
	2	2	2	3	2	3	2	3	3	4	3	3	3	3	2	3	4	2	3	3	2	3	4	4	2	2	3	2	3	4	4	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	1	4		
	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	2	3	4	5	4	4	1	4	3	2	1	3	4	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5		
	3	2	2	1	2	3	2	3	2	3	2	3	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	2	3	3	3	2	3	3	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	5	4	4	5	4	5	3	4	5	4	5	4	5	5	5	2	4	4	5	5	5	5	2	4	4	5	5	1	5	4	1	3	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5
	3	2	2	2	4	3	3	3	3	3	3	2	2	2	3	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	4	3	3	3	2	4	3	5	5	5	4	4	3	4	3	4	2	5	5	4	2	5	5	4	5	1	4	5	1	3	3	1	3	3	3	5	5	4	1	4	4	1	4	4	5	4	4	4	4	4	5		
	3	3	3	3	3	4	2	4	3	3	4	3	4	2	4	2	2	4	4	4	4	3	4	3	2	2	2	3	4	1	4	1	2	3	4	5	4	3	4	3	4	3	3	3	2	3	4	4	4	4	5		
	4	3	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	5	4	1	3	3	4	4	4	4	4	4	4	4	4	4	4	3	3	3	4	4	4	3	3	3	3	4	4	3	3	2	4	2	4	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
	4	3	1	1	2	2	2	2	1	1	3	2	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	4	3	3	4	3	5	4	4	4	5	5	5	5	5	5	5	2	4	4	5	5	5	1	4	4	1	4	5	1	4	5	1	4	5	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
	FOLLOWER AVERAGE	3,5	3,2	2,6	2,7	2,8	3,5	2,8	3,4	3,1	3,0	3,4	3,3	2,8	3,2	3,1	2,9	3,0	3,2	3,9	3,2	3,0	2,5	3,1	2,5	2,6	2,6	3,1	3,2	2,6	2,9	1,6	2,9	3,1	3,1	3,5	3,8	3,3	3,8	2,9	3,0	2,8	3,1	2,9	3,3	3,5	3,1	4,4					
	SLANT CORRECTED AVERAGE						3,5	2,8	3,4	3,1	3,0	3,4	3,3	2,8	3,2	3,1	3,1	3,0	3,2	3,9	3,2	3,0	2,5	3,1	2,5	3,4	3,4	3,1	3,2	2,6	2,9	1,6	2,9	3,1	3,1	3,5	3,8	3,3	3,8	2,9	3,0	2,8	3,1	2,9	3,3	3,5	3,1	4,4					
	LEADER RATING	4	5	4	2	4	4	4	4	5	5	4	5	5	5	5	1	4	5	5	5	5	2	5	5	1	5	5	1	4	1	5	1	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5			
	SLANT CORRECTED RATING						4	4	4	5	5	5	4	5	5	5	5	4	5	5	5	5	5	4	5	5	5	5	5	5	4	5	5	5,0	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
	LSI_D	-0,5	-1,8	-1,4	0,7	-1,2	-0,5	-1,2	-0,6	-1,9	-2,0	-1,6	-0,7	-2,2	-1,8	-1,9	-1,9	-1,0	-1,8	-1,1	-1,8	-2,0	-0,5	-1,9	-2,5	-1,6	-1,6	-1,9	-1,8	-1,6	-1,1	-0,6	-2,1	-2,1	-0,9	-1,5	-1,2	-1,7	-1,2	-2,1	-2,0	-1,2	-1,9	-2,1	-1,7	-1,5	1,1	-0,6					
	STANDARD DEVIATION	0,94	0,73	0,97	1,11	0,91	0,85	0,73	0,98	1,09	1,22	0,80	1,00	1,29	1,03	1,14	0,69	1,02	0,91	1,02	1,08	1,10	1,33	1,01	0,98	1,06	1,29	0,80	1,01	1,02	0,93	0,93	0,86	1,09	0,99	1,10	1,11	0,97	0,94	0,93	1,04	0,92	0,69	1,09	1,09	0,90	0,98	0,75					

Pool B leader and follower rating summary:

VARIABLE	PW1	PW2	PW3	PW4	PW5	LSI1	LSI2	LSI3	LSI4	LSI5	LSI6	LSI7	LSI8	LSI9	LSI10	LSI11	LSI12	LSI13	LSI14	LSI15	LSI16	LSI17	LSI18	LSI19	LSI20	LSI21	LSI22	LSI23	LSI24	LSI25	LSI26	LSI27	LSI28	LSI29	LSI30	LSI31	LSI32	LSI33	LSI34	LSI35	LSI36	LSI37	LSI38	LSI39	LSI40	LSI41	LSI42				
FOLLOWER RATINGS (n=26)	4	2	1	2	2	3	2	2	2	2	1	1	2	1	4	2	3	5	1	2	3	3	2	4	3	2	2	4	2	3	4	5	2	2	3	3	2	2	2	5	2	2	2	2	4	4	5				
	3	2	1	2	1	3	2	3	3	3	2	3	1	2	2	1	3	3	4	1	2	1	2	1	3	4	3	3	3	3	2	2	3	4	3	3	2	2	5	3	2	2	3	4	2	2	2	2			
	3	2	1	2	2	3	3	3	1	4	4	3	3	4	1	3	1	3	3	3	4	3	3	2	1	1	2	2	5	3	1	3	3	1	4	3	3	4	3	3	3	3	3	3	3	3	3	3	3	1	5
	2	3	1	3	2	4	1	3	2	3	4	2	3	1	4	1	3	5	2	3	1	2	3	3	2	2	3	1	2	5	4	3	3	3	3	3	3	3	3	1	5	3	2	2	2	2	5	2	5		
	2	2	2	2	2	3	2	3	3	2	3	3	2	2	2	4	2	2	3	2	2	1	4	3	3	2	2	4	1	4	3	3	2	3	3	3	2	2	4	2	3	2	2	2	2	2	4	4	4	4	
	2	2	2	2	2	3	2	2	2	2	2	3	2	3	2	4	3	3	5	3	2	2	5	5	3	5	3	3	3	2	3	3	3	5	3	3	3	3	2	1	5	3	1	2	3	3	3	5			
	3	2	3	2	2	4	2	3	3	3	4	3	3	2																																					

Pool C leader and follower rating summary:

VARIABLE	PW1	PW2	PW3	PW4	PW5	LS1	LS2	LS3	LS4	LS5	LS6	LS7	LS8	LS9	LS10	LS11	LS12	LS13	LS14	LS15	LS16	LS17	LS18	LS19	LS20	LS21	LS22	LS23	LS24	LS25	LS26	LS27	LS28	LS29	LS30	LS31	LS32	LS33	LS34	LS35	LS36	LS37	LS38	LS39	LS40	LS41	LS42					
FOLLOWER RATINGS (n=26)	4	3	3	3	2	3	3	3	2	2	2	2	2	2	3	3	2	3	4	2	2	4	3	2	4	3	3	2	3	2	3	4	4	2	3	4	3	4	3	4	2	2	2	3	4	4	4	4				
	2	3	3	2	3	3	2	2	3	3	2	1	2	2	4	2	2	3	4	2	5	5	2	4	4	1	2	3	2	3	2	5	2	4	3	3	4	3	4	1	4	3	2	2	2	3	2	5				
	3	3	2	2	3	3	3	2	2	3	2	3	2	3	2	4	2	3	4	3	3	4	5	2	4	4	2	2	3	2	2	4	2	3	3	3	3	3	3	1	4	1	4	1	4	2	1	3	2	5		
	3	2	2	2	3	3	3	2	3	3	2	2	2	3	2	2	2	2	3	2	3	4	3	2	3	3	3	2	4	2	3	3	4	4	2	2	3	2	2	2	2	2	4	3	1	2	3	2	5			
	4	3	2	3	3	4	4	3	3	3	3	4	4	4	4	3	2	3	5	4	4	3	4	3	1	4	3	1	4	3	1	4	1	4	1	4	1	4	1	5	1	4	4	3	4	4	3	4				
	5	4	4	4	4	5	4	4	4	4	5	4	4	4	4	4	2	4	3	5	5	5	1	4	4	1	1	4	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4			
	2	2	2	2	2	3	4	3	3	2	3	3	3	3	3	3	4	3	3	5	3	3	2	4	2	4	2	4	2	2	4	2	4	5	3	3	3	3	3	2	4	2	2	2	5	3	5					
	4	3	2	1	2	2	2	1	1	1	1	1	1	1	1	3	4	2	1	3	1	1	3	2	1	5	4	3	2	4	1	3	4	2	1	3	4	2	1	3	2	1	2	2	2	2	5					
	2	2	2	1	3	3	2	3	2	2	3	2	1	2	1	3	2	4	5	1	2	4	3	1	3	3	1	3	3	4	2	3	1	2	5	4	4	4	4	4	1	4	2	1	2	2	2	4				
	4	3	3	2	3	3	4	2	3	3	3	3	3	3	3	3	3	2	3	4	2	3	4	4	2	5	4	2	2	3	2	3	4	4	2	3	3	3	3	3	3	3	3	3	3	3	3	2	5			
	4	2	1	2	1	2	2	1	2	1	2	1	1	1	1	1	3	1	3	1	1	1	3	2	1	3	2	1	2	4	2	3	5	2	3	4	3	3	4	1	5	2	1	1	2	4	4	5				
	3	2	2	2	3	3	1	3	1	2	3	1	2	3	1	5	2	3	3	2	2	4	5	3	3	2	2	1	2	4	1	3	3	4	3	3	5	2	3	2	5	2	3	2	1	4	1	5				
	2	2	1	3	1	3	2	2	1	1	3	2	2	3	2	3	2	4	1	3	3	2	2	5	4	3	3	5	2	4	2	1	3	5	3	3	3	2	3	4	1	3	2	2	2	4	4	4				
	3	3	3	3	3	3	3	4	3	3	3	3	2	2	3	4	3	3	4	3	4	3	4	3	1	4	2	3	3	2	2	4	3	3	4	3	4	3	3	2	2	2	3	3	4	4	5					
	3	3	2	3	2	4	3	3	3	3	2	3	2	2	3	2	3	2	3	5	3	3	1	3	2	3	4	3	3	3	3	4	3	3	4	3	4	3	4	3	4	3	4	2	3	2	3	4	5			
	4	2	2	3	2	4	4	4	4	4	3	4	4	4	4	3	2	4	2	5	4	4	2	4	4	1	1	4	3	1	4	2	5	3	4	4	4	5	4	4	4	3	4	1	4	5	5	4	5			
	2	2	3	3	3	3	3	3	2	3	4	3	2	3	2	3	2	3	3	4	3	3	2	3	4	2	3	4	2	3	2	2	3	2	4	3	2	2	2	3	3	3	2	4	3	2	4	3	4	3		
	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
	4	3	2	1	2	2	2	1	1	1	1	1	1	1	1	2	4	1	3	3	1	2	4	1	1	4	5	3	1	3	3	1	3	5	3	1	3	5	3	1	2	3	2	5	2	1	1	2	1	3	4	
	1	2	1	2	1	3	2	3	2	2	4	2	3	3	2	4	2	3	3	2	2	5	4	3	3	2	2	2	3	3	1	2	3	3	1	2	3	4	4	3	3	1	1	3	2	2	2	4	4	5		
	4	3	3	3	4	4	3	2	1	3	2	3	1	1	3	3	1	2	5	1	2	1	3	1	4	5																										
	4	1	1	3	1	3	2	2	1	3	2	1	3	2	1	4	2	3	5	2	2	3	4	2	4	1	2	2	3	3	1	3	4	4	3	3	3	3	3	3	3	1	5	1	2	1	2	5	3	3		
	4	2	2	3	2	3	4	2	3	3	3	2	3	2	3	2	3	2	3	4	3	3	4	3	3	4	3	2	3	3	3	2	2	4	3	3	4	3	4	3	4	2	5	3	3	3	3	4	4	5		
	3	2	2	2	2	2	2	4	3	3	2	2	2	2	2	2	4	2	3	4	3	3	5	2	1	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	FOLLOWER AVERAGE	3,2	2,5	2,2	2,4	2,4	3,1	2,8	2,7	2,2	2,5	2,8	2,3	2,2	2,5	2,3	3,3	2,2	2,8	4,1	2,5	2,7	3,2	3,4	2,1	3,2	3,0	2,7	2,3	2,9	2,4	2,1	3,6	3,7	3,0	3,4	3,4	3,0	3,5	2,0	3,8	2,4	2,4	2,2	2,6	3,5	3,1	4,5				
	SLANT CORRECTED AVERAGE						3,1	2,8	2,7	2,2	2,5	2,8	2,3	2,2	2,5	2,3	2,7	2,2	2,8	4,1	2,5	2,7	2,8	3,4	2,1	2,8	3,0	2,7	2,3	3,1	2,4	3,9	3,6	2,3	3,0	3,4	3,4	3,0	3,5	2,0	2,2	2,4	2,4	2,2	2,6	3,5	3,1	4,5				
LEADER RATING	4	3	2	3	4	4	3	4	3	4	4	4	3	4	3	4	2	3	5	4	4	2	4	3	1	1	3	3	1	3	2	3	2	4	5	5	4	4	4	3	3	4	2	4	2	2	4	3	4	5		
SLANT CORRECTED RATING						4	3	4	3	4	4	4	3	4	3	4	3	5	4	4	4	4	3	5	5	3	3	5	3	4	5	4,0	4	5	5	5	5	5	5	4	2	4	3	3	4	2	2	4				
LSI D	-0,8	-0,5	0,2	-0,6	-1,6	-0,9	-0,2	-1,3	-0,8	-1,5	-1,2	-1,7	-0,8	-1,5	-0,7	-1,3	-0,8	-2,2	-0,9	-1,5	-1,3	-1,2	-0,6	-0,9	-2,2	-2,0	-0,3	-0,7	-1,9	-0,6	-0,1	-1,4	-1,7	-1,0	-1,6	-1,6	-2,0	-1,5	-2,0	0,2	-1,6	-0,6	-0,8	-1,4	1,5	1,1	0,5					
STANDARD DEVIATION	0,93	0,64	0,75	0,74	0,79	0,64	0,89	0,90	0,89	0,80	0,93	0,86	0,93	0,89	0,83	0,78	0,85	0,66	0,80	1,02	0,95	1,33	1,01	0,87	1,09	1,22	0,88	0,61	0,99	0,85	0,99	0,89	1,01	0,75	0,84	1,02	0,66	0,80	0,81	0,93	0,84	0,93	0,96	1,04	0,93	1,19	0,69					

Pool D leader and follower rating summary:

VARIABLE	PW1	PW2	PW3	PW4	PW5	LS1	LS2	LS3	LS4	LS5	LS6	LS7	LS8	LS9	LS10	LS11	LS12	LS13	LS14	LS15	LS16	LS17	LS18	LS19	LS20	LS21	LS22	LS23	LS24	LS25	LS26	LS27	LS28	LS29	LS30	LS31	LS32	LS33	LS34	LS35	LS36	LS37	LS38	LS39	LS40	LS41	LS42			
FOLLOWER RATINGS (n=25)	3	3	3	5	3	5	5	5	3	4	5	5	5	5	4	2	4	3	5	5	5	1	5	5	3	1	5	5	1	5	1	5	1	3	1	5	5	5	5	5	5	5	5	5	5	5	4	4	5	
	3	3	3	4	3	5	5	4	4	5	5	5	5	5	5	2	3	3	5	5	5	1	5	5	3	1	5	5	1	5	1	5	1	3	1	5	5	5	5	5	5	5	5	5	5	5	5	4	4	5
	2	3	2	2	3	4	2	2	3	2	3	3	3	2	3	4	2	3	5	3	3	1	2	2	4	4	3	3	2	4	2	3	2	4	2	3	3	2	5	3	2	2	4	2	3	2	3	2	2	5
	1	2	2	1	2	4	1	2	2	2	1	2	2	2	2	4	1	2	1	1	1	1	5	3	1	4	5	2	2	4	2	3	1	5	3	3	3	2	3	1	5	1	3	1	2	4	1	2	4	5
	3	3	3	3	3	5	3	4	4	4	5	5	4	5	5	4	3	4	4	5	5	4	1	4	4	3	1	4	3	1	3	3	3	1	5	5	5	5	5	5	5	5	5	5	5	5	3	3	3	
	3	3	2	4	2	4	3	4	3	4	4	4	4	4	4	4	3	3	4	4	4	3	3	4	3	2	2	5	4	3	1	5	1	5	4	4	4	4	4	4	4	4	3	4	4	4	3	4	5	
	3	3	3	3	2	3	3	3	2	4	4	3	3	4	3	2	3	3	5	5	5	4	3	3	3	2	3	2	3	4	2	3	2	3	3	3	4													

Pool specific attribution averages:

POOL A

VARIABLE	POOL	LEADER	VARIATION
A1	3,05	4,50	-1,45
A2	3,28	4,80	-1,52
A3	3,27	4,64	-1,37
A4	3,48	4,80	-1,32
A5	3,12	4,82	-1,70
A6	3,37	4,57	-1,20
A7	3,22	4,91	-1,69
A8	3,07	5,00	-1,93
A9	3,14	4,78	-1,64
A10	3,27	4,84	-1,57
A11	3,18	4,85	-1,67
A12	3,15	4,75	-1,61
AVERAGE	3,22	4,77	-1,55

POOL C

VARIABLE	POOL	LEADER	VARIATION
A1	2,58	3,83	-1,26
A2	2,86	4,10	-1,24
A3	2,70	3,71	-1,02
A4	3,10	4,50	-1,40
A5	2,57	3,68	-1,11
A6	2,95	4,57	-1,62
A7	2,74	4,18	-1,44
A8	2,40	3,50	-1,10
A9	2,69	3,44	-0,76
A10	2,77	4,16	-1,39
A11	2,73	3,96	-1,23
A12	2,56	3,88	-1,32
AVERAGE	2,72	3,96	-1,24

POOL B

VARIABLE	POOL	LEADER	VARIATION
A1	2,63	3,50	-0,87
A2	2,72	3,70	-0,98
A3	2,52	3,43	-0,91
A4	2,96	3,80	-0,84
A5	2,52	3,41	-0,89
A6	2,85	3,86	-1,00
A7	2,72	3,64	-0,91
A8	2,45	3,50	-1,05
A9	2,56	3,33	-0,77
A10	2,74	3,74	-0,99
A11	2,68	3,62	-0,94
A12	2,51	3,63	-1,12
AVERAGE	2,65	3,60	-0,94

POOL D

VARIABLE	POOL	LEADER	VARIATION
A1	3,08	4,20	-1,12
A2	3,38	4,20	-0,82
A3	3,11	3,92	-0,81
A4	3,46	4,40	-0,94
A5	3,09	3,74	-0,65
A6	3,39	4,14	-0,75
A7	3,22	4,09	-0,87
A8	3,09	3,80	-0,71
A9	3,07	4,00	-0,93
A10	3,23	3,82	-0,59
A11	3,15	3,96	-0,81
A12	3,18	4,00	-0,82
AVERAGE	3,20	4,02	-0,82

Pool A Spearman's Rho correlation values ($n = 25$):

Values indicated in red are statistically significant at $\rho < 0.05$							
Variable	r_s	Variable	r_s	Variable	r_s	Variable	r_s
LSI1	-0.633716	LSI12	-0.686739	LSI23	-0.316775	LSI34	-0.505574
LSI2	-0.542140	LSI13	-0.483450	LSI24	-0.522070	LSI35	-0.522323
LSI3	-0.392860	LSI14	-0.286327	LSI25	0.428787	LSI36	-0.642853
LSI4	-0.600239	LSI15	-0.639020	LSI26	-0.565102	LSI37	-0.118686
LSI5	-0.600239	LSI16	-0.626335	LSI27	-0.203485	LSI38	-0.649903
LSI6	-0.446145	LSI17	-0.430139	LSI28	-0.632537	LSI39	-0.618366
LSI7	-0.576259	LSI18	-0.428022	LSI29	-0.478901	LSI40	-0.321678
LSI8	-0.683179	LSI19	-0.502883	LSI30	-0.262115	LSI41	-0.020389
LSI9	-0.546107	LSI20	-0.673888	LSI31	-0.198031	LSI42	-0.215219
LSI10	-0.707220	LSI21	-0.777507	LSI32	-0.508272	Average	-0.568254
LSI11	-0.658772	LSI22	-0.631060	LSI33	-0.127574		

Pool B Spearman's Rho correlation values ($n = 26$):

Values indicated in red are statistically significant at $\rho < 0.05$							
Variable	r_s	Variable	r_s	Variable	r_s	Variable	r_s
LSI1	-0.392624	LSI12	-0.311772	LSI23	-0.029344	LSI34	-0.448959
LSI2	-0.419253	LSI13	-0.088118	LSI24	-0.260101	LSI35	-0.578009
LSI3	-0.019602	LSI14	-0.338651	LSI25	0.206477	LSI36	-0.342919
LSI4	-0.251102	LSI15	-0.582000	LSI26	-0.412093	LSI37	-0.341635
LSI5	-0.287683	LSI16	-0.383688	LSI27	-0.044156	LSI38	-0.336941
LSI6	-0.369841	LSI17	-0.042588	LSI28	-0.463633	LSI39	-0.492071
LSI7	-0.372175	LSI18	-0.119413	LSI29	-0.504959	LSI40	-0.008106
LSI8	-0.563351	LSI19	-0.402992	LSI30	-0.268742	LSI41	-0.097871
LSI9	-0.314226	LSI20	-0.259622	LSI31	-0.262372	LSI42	-0.214825
LSI10	-0.626191	LSI21	-0.253795	LSI32	-0.707567	Average	-0.470991
LSI11	-0.198047	LSI22	-0.511677	LSI33	-0.032907		

Pool C Spearman's Rho correlation values ($n = 26$):

Values indicated in red are statistically significant at $\rho < 0.05$							
Variable	r_s	Variable	r_s	Variable	r_s	Variable	r_s
LSI1	-0.312726	LSI12	-0.412163	LSI23	-0.033780	LSI34	-0.484651
LSI2	-0.493332	LSI13	-0.126986	LSI24	-0.463302	LSI35	-0.192303
LSI3	-0.262400	LSI14	-0.106938	LSI25	0.110299	LSI36	-0.310372
LSI4	-0.325623	LSI15	-0.204452	LSI26	-0.024339	LSI37	-0.384417
LSI5	-0.531740	LSI16	-0.372245	LSI27	-0.294750	LSI38	-0.434102
LSI6	-0.113815	LSI17	-0.367194	LSI28	-0.240276	LSI39	-0.328039
LSI7	-0.544691	LSI18	-0.041967	LSI29	-0.395380	LSI40	-0.350395
LSI8	-0.050142	LSI19	-0.066228	LSI30	-0.077515	LSI41	-0.103350
LSI9	-0.056772	LSI20	-0.219683	LSI31	-0.129235	LSI42	-0.020890
LSI10	-0.651010	LSI21	-0.066095	LSI32	-0.066860	Average	-0.279352
LSI11	-0.330024	LSI22	-0.158175	LSI33	-0.217379		

Pool D Spearman's Rho correlation values ($n = 25$):

Values indicated in red are statistically significant at $\rho < 0.05$							
Variable	r_s	Variable	r_s	Variable	r_s	Variable	r_s
LSI1	-0.375943	LSI12	-0.528922	LSI23	-0.433387	LSI34	-0.429601
LSI2	-0.592862	LSI13	-0.150647	LSI24	-0.616516	LSI35	-0.644470
LSI3	-0.510441	LSI14	-0.561420	LSI25	0.605859	LSI36	-0.620442
LSI4	-0.473800	LSI15	-0.644826	LSI26	-0.555831	LSI37	-0.144404
LSI5	-0.621590	LSI16	-0.679347	LSI27	-0.513378	LSI38	No value
LSI6	-0.355970	LSI17	-0.612899	LSI28	-0.482131	LSI39	-0.385418
LSI7	-0.564146	LSI18	-0.307034	LSI29	-0.430848	LSI40	-0.530725
LSI8	-0.538759	LSI19	No value	LSI30	-0.488840	LSI41	-0.313103
LSI9	-0.595094	LSI20	-0.338153	LSI31	-0.056395	LSI42	No value
LSI10	-0.533807	LSI21	No value	LSI32	-0.485993	Average	-0.621079
LSI11	-0.544494	LSI22	-0.344971	LSI33	-0.467925		