The role of communication in managing the safety climate of construction site environments

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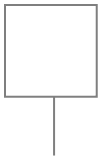
Abstract

Managers in the construction sector are met with a critical charge: they are responsible for the safety of employees in one of the most notoriously dangerous industries in the world. In terms of managing the safety climate of construction site environments, no recommendations have been made in literature that truly elucidate the role of organisational communication therein. The aim of this research is to fill this void by enriching the seminal work of Mohamed (2002) which focusses in on the nature of safety climate in construction organisations, and the factors it comprises of. To this end, the research comprises a data-triangulated qualitative and quantitative empirical study undertaken at nine different construction sites in South Africa, which allowed for the reformulation of the model for safety climate management in construction environments, with an added understanding of the role of communication therein. In this, findings indicated that communication is conducive to a positive safety climate when it is managed to be strategic, holistic, relational and symmetrical. The model put forward in this article offers an empirical application of the four identified constructs of communication, which gives way to data-driven recommendations for use in construction organisation settings.



Keywords

Climate; Communication; Construction; Construction Sites; Models; Safety; Safety Climate; Safety Communication; Safety Culture

Introduction

Construction site environments are considered among the most inherently hazardous of working environments, accounting for at least 60,000 fatalities every year (ILO 2016; *cf.* Nebosh 2016). As a result, Occupational Safety forms (or should form) part of the most notable considerations of construction management. Literature regarding safety in construction site environments abounds in examinations and investigations concerning the *culture* that the organisation's safety systems and management proffers. These studies generally acknowledge or concede that safety culture is significantly determined by the safety *climate* of the organisation, which in many ways betoken its nature. Notwithstanding the perceived importance, very few of these studies focus solely or chiefly on the safety *climate* of construction organisations (without treating it as a 'means to an end', or relating it vis-à-vis culture as the main element).

Making a clear distinction, Goulart (2013) asserts that safety culture seeks to measure the perspectives, beliefs, and traditions of organisational safety through the lens of a historical perspective, whereas safety climate is a measure of perceptions regarding safety, reflective of the immediate circumstances (*cf.* also Denison 1996). Herein, although allowing for the fact that safety culture is immensely important, safety climate as a distinct management attribute should not be neglected.

One of the few seminal works that focus in on safety climate management in construction site environments is that of Mohamed (2002), who proposes a model for safety climate in construction organisations (or sites) with consequential constructs or factors. Seeing as "there is [at the time] virtually no research examining work organisational factors such as the safety climate in construction" (Mohamed 2002, 375), the proposed model serves as a formative piece of literature to guide and gauge future research endeavours into this phenomenon. The constructed model shows those factors that impact on effective safety climate management in construction site environments. These factors total ten and work in concert with one another, all on one level (explained in greater detail below in the literature review).

By Mohamed's (2002) own admission, however, his article never delves into the issue of the interrelationships among the factors or constructs identified. From Sunding and Ekholm (2015, 696) an explanation for this could perhaps be gleaned. The authors comment on the fact that "several researchers have identified a lack of interest directed at social and psychological aspects as a weakness in construction management theory" (p. 696). Seeing as safety climate management concerns itself with these social and psychological factors (specifically the perceptions of employees as it regards the safety management of the organisation) this void in literature is perhaps not so surprising. Positioned largely within this breach, the

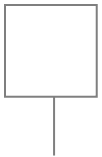
aim of this study is to – theoretically and empirically – speak to the aspect of communication as it relates to safety climate in a construction setting, as from the vantage point of the field of organisational communication management.

Literature that hails from this field (*cf*. Denison 1996; Meudell and Gadd 1994; Verwey and Du Plooy-Cilliers 2002) purports that internal organisational communication either encourages or discourages a positive organisational climate. Transmuted to the subject of a *safety* climate in a construction organisation, the proposition would thus hold true that internal *safety* communication would encourage or discourage a positive safety climate in turn. Mohamed (2002) tests, and then accepts, a variation of this hypothesis, but does so by identifying communication as one of ten constructs of safety climate, which eventually leads through to safe work behaviour. Organisational communication literature, however, suggests that communication plays a more meta-role in terms of climate: it is not *one of many* independent constructs that shapes the safety climate in an organisation, but rather a factor that influences, and impacts on each of the constructs identified, themselves. Put differently, communication is therefore suggested to not be an independent factor or construct to safety climate, but rather interlaced in all other identified constructs.

From this stance, additional factors underlying to communication as it relates to the constructs of safety climate is proposed in this research, which resultantly has the aim of enriching the model proposed by Mohamed (2002) by expounding the aspect of communication as dealt with therein. This will be done by firstly unpacking the chronological development that shaped the understanding of internal communication – the literature as it relates to the field of safety climate creation and management – after which the empirical methodology for testing the theoretical assertions born from this literature will be elucidated. Lastly, the findings and conclusions it yielded, which includes the adapted graphical representation of the element of communication in Mohamed's (2002) model, will be discussed.

Guiding Literature

Internal organisational communication is defined as the cross-functional communication transactions between individuals and/or groups on different levels in an organisation, which has the main focus of employee communication that is strategically managed (*cf*. Van Dyk *et al*. 2015). Speaking to the importance thereof, Downs and Hazen (2004, 2) aver that at "the most fundamental level, organisations need to monitor how well employees communicate because the organisation's very survival often depends on the workers' abilities to exchange and coordinate information". In construction settings, and in terms of internal safety communication, it is not only the organisation's survival that is in question (for example through the prosecution or even shut-down of operations with lacking safety records), but also the literal survival of the employees, themselves. It is through this lens that internal organisational communication



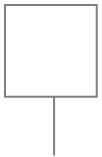
theorists propose communication to have a meta-function when it comes to organisational climate: one should not only investigate the factors that contribute to climate creation, but also the manner in which they are communicated internally, and thus by extension, are manifest in the employees' consciousness.

In this section, an overview of the predominant theories that informed and shaped the phenomenon of internal organisational communication (as for the purposes of this research, with its focus on safety climate in construction organisations) will be provided chronologically as per its underlying paradigmatic thinking, picking up the argument and theoretical progressions in the field as from the systematic intentions of the stakeholder theory.

The stakeholder theory took its cue from the systems theory's preposition of interrelatedness of systems and subsystems and holds forth that, if an organisation is a system, it necessarily has subsystems, and if the prepositions of the systems theory are assumed, these subsystems have a meaningful impact on the meta-system and should thus be managed. Moreover, these subsystems should be defined as all aspects and variables that the organisation (as system) comes into contact with. This then naturally pins all constituency groups as important to the organisation – not only just shareholders (which was the dominant stance at the time). From the systems theory, theorists such as Freeman (1984) therefore developed the concept, and later the theory of *stakeholders* which justly claims that an organisation is interrelated to more groups than just shareholders; that they are interrelated with all constituencies and that these constituencies can be defined as stakeholders. One of the most important stakeholder groups, in any organisational setting, is employees – as it is by their hands that the organisational goals are attained and the organisational setting is shaped (Freeman *et al*. 2010; Jensen 2010; Laplume *et al*. 2008).

Building forth on this realization that stakeholders are a subsystem of an organisation which needs to be managed, theorists such as Ledingham and Bruning (2000) develop the stakeholder management theory, which grows to explain that it is through communication that relationships are managed and maintained between an organisation and its stakeholders, but does not explain (to the full and concrete extent) what this relationship, or the communication that governs it, should look like. Within this void the relationship management and the excellence theories developed.

In order to establish a benchmark for organisational communication efforts that can be seen as the ideal, the International Association of Business Communicators (IABC) funds a study to uncover the 'tools' and prerequisites of excellent organisational communications, which became known as the excellence theory (Downs *et al.* 2004; Dozier *et al.* 1995; Grunig and Hon 1999; Grunig 1997). This theory purports that excellent organisational communication is, at its core, communication that is managed strategically as it balances the needs of the organisation and its stakeholders – in this case employees – by means of two-way symmetrical communication that allows for employees to be participants to, rather than just passive



recipients of the communication process in an organisation (Downs *et al.* 2004; Grunig and Hon 1999; Grunig 1997).

Many of the same authors involved in the excellence study aided in the development of the relationship management theory (Downs *et al.* 2004; Grunig and Hon 1999). The relationship management theory sets and explains the elements and types of relationships that can and could exist between an organisation and its stakeholders. At its core, the relationship between an organisation and its employees (as in the focus of this research) should be characterized by trust, commitment, satisfaction, control mutuality, exchange and communality (Grunig and Hon 1999; Grunig 1997). In this research this is used in conjunction with the foregoing theories to explain and describe the relationship, aided by communication (as from the excellence theory), that inherently exists between an organisation and its employees (as from the stakeholder relationship and stakeholder theory) as these parties to the relationship are interrelated systems that are part of the same hierarchy (as from the systems theory), working towards the goal of a conducive safety climate.

The last progression to be taken to the holistic understanding of this phenomenon, is to view it from the side of the recipients of the communication message – the employees. In this, communication satisfaction as a construct can be traced back to the late 1960's, and to the work of Likert (1967), who reasons communication to be an intervening variable between job satisfaction on the one hand, and the realization of organisational goals on the other (Battey 2010; Likert 1967). In 1977, the theorists Downs and Hazen come to the conclusion that communication satisfaction is a multidimensional construct (and not unidimensional as Likert (1967) averred) as individuals are not either satisfied or dissatisfied with internal organisational communication, but hold different levels of satisfaction. This level of satisfaction is gauged by the eight dimensions of satisfaction that Downs and Hazen (1977) then propose – including the perception of communication climate; relationship to superiors; organisational integration; media quality; horizontal and informal communication; the organisational perspective; relationship with subordinates; and personal feedback (Battey 2010; Downs and Hazen 1977).

The comprehensive view offered by these theories from the field of internal organisational communication management is that communication is a crucial and decisive element of management, when it comes to fostering a safety climate within construction site settings. Indeed, all safety management processes can only manifest in the behaviour of employees once it is communicated in some way or another. Mohamed (2002) speaks to this aspect when constructing a model for safety climates in construction site environments, but does so by positioning communication as one of ten potentially independent constructs of safety climate. The ten factors identified by this model are defined below in Table 1.

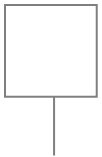


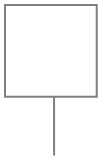
Table 1: Factors of safety climate in construction site environments after Mohamed (2002)

Factor:	Terse explanation:
Commitment	The more management is committed to safety, the more positive the safety climate is which then, in turn, influences the commitment of the employees, for the better.
Safety rules and procedures	The extent to which employees feel that the safety rules and procedures are implemented and promoted by the organisation.
Supervisory environment	Supervisory personnel are responsible to ensure that the safety program is carried out during daily operations.
Workers' involvement	Safety is not only the responsibility of managers and supervisors, but of the worker him/herself as well.
Supportive environment	Having a supportive and safety-conducive work environment demonstrates workers' concern for safety and fosters closer ties between them.
Personal risk appreciation	Employees' perception of risk, as well as their willingness to take risks.
Appraisal of work environment and work hazards	If the layout, planning and facilities of the working environment is conducive to safety practices, the safety climate will be enhanced.
Work pressure	The degree to which employees feel production pressures, and the amount of time allocated to plan and carry out work.
Competence	Employees need to feel confident in their own safety competence, as well as the competence of those around them.
Communication	The more effective the organizational communication dealing with safety issues, the more positive the safety climate.

Mohamed (2002, 380) seems to echo the stance of organisational communication management literature regarding the importance of communication in this case, in stating that communication should be seen as a "prerequisite to creating and sustaining a positive safety climate in construction site environments". The limitation in this case, however is that he never elaborates as to what this communication should look like. The organisational communication literature discussed above breaches this void and suggests that communication plays a meta-role in terms of climate: it is not one of many independent constructs that shapes the safety climate in an organisation, but rather a factor that influences, and impacts on each of the constructs identified, themselves.

Research Methodology and Sampling

In testing these assertions gleaned from literature, a data-triangulated empirical methodology was employed in this study. Herein, as the findings propose to expound on the work of Mohamed (2002), a similar methodology was employed where applicable, so as to aid in the validity of the findings. Empirically, the study was conducted at two South African construction organisations, which amounted to the realized sample of nine construction sites in total. The choice of organisations for the study was based on a theoretical sampling method. According to David and Sutton (2004), in theoretical sampling, the units to be researched are selected according to the researcher's own knowledge and opinion about their appropriateness. The two sampled organisations were therefore selected, mainly based on four points. Firstly, both organisations are known to have venerable safety records. Secondly, the organisations have both temporary and unique sites, as well as both individual and mega projects, allowing for a diverse



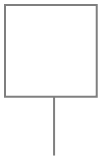
mandate and scope. Thirdly, both organisations function within most provinces in South Africa – and even in other neighbouring countries in southern Africa – which allows for geographical variability, ensuring that the organisations' project and site environments are exposed to more and varied safety environments. Lastly, both organisations retain employees on a permanent (rather than short-term contract) basis, which allows for employees to have an acuter if not deeper understanding and perception of the safety climate of the organisation (perhaps not entirely possible if on short-term contract basis).

At these two organisations, both qualitative and quantitative research methods were employed insofar as the administering of quantitative questionnaire surveys and interview engagement. Different to the method utilized by Mohamed (2002) was the addition of focus groups and the fact that the employment of methods followed a particular order, and was not done simultaneously.

As it relates to the order of the empirical evaluation; the theoretical assumptions from literature were firstly coded by means of thematic content analysis, which yielded four broad themes of internal communication for a conducive safety climate in construction site environments. These themes were then tested and eventually altered based on interviews with four safety managers. Thereafter followed the pilot testing and then the administering of the quantitative questionnaire. After statistical analysis of the findings (discussed in greater detail below), focus groups with employees were held to elucidate interesting or enigmatic results, and to whittle the themes further. Following adjustments based on the findings from the first organisation, the process was repeated at a second organisation insofar as the interviews and quantitative surveying was concerned. The combination of quantitative and qualitative methodologies, employed in this sequence, allowed for the adaptation of the theoretical assertions (as manifest in the four themes identified) so as to speak directly to the aspect of safety climates, specifically in construction site environments.

The quantitative questionnaire – which serves as the measurement of the theoretical assumptions, echoing the methodology of Mohamed (2002) – was born from literature, with the theories of internal organisational communication management as well as the measuring instruments for their testing or evaluation serving as the foundation for its construction. The empirical testing of the questionnaire was pre-empted by a pilot study of said questionnaire – namely by means of a conventional pretesting pilot study as well as through the use of an expert panel.

The units of analysis were the employees of the respective organisations (as climate has to do with the *perception* of those in the organisation). The sampling method used for both stages of administration was systematic sampling. Systematic sampling is part of the probability sampling category, where every person in the population has an equal and known chance of being included in the research (Keyton 2006). This makes systematic sampling a random sampling method, which excludes any bias from the researcher's side and that allows for the findings of the measuring instrument to be generalized to the broader population



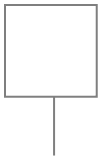
(Keyton 2006). Systematic sampling is only possible when a sample framework of the population is available – as was the case here, where the lists of names of all employees were taken.

In terms of the administration at the first organisation, the full population was 807 employees. The response rate of the questionnaires amounted to n=281, which gives the sample a confidence level of over 95%, which thus has a satisfactory sampling error of under 5% (Keyton 2006). At the different sites of the second organisation, a desired sample of ten employees per site was determined by the management of this organisation (this is the amount of employees per site that access would be given to) although employees could be selected without bias. With the administering of the questionnaire through facilitation the response rate of the questionnaires at the second organisation turned out to be 73%.

Due to the quantitative nature of the questionnaire, the interpretation of the data was done by means of statistical interpretation, with the first statistical testing being the determining of the questionnaire items' Cronbach's alphas. Cronbach's alpha (α) is the most commonly used and universally accepted scale of reliability in quantitative measurement (Field 2009). This value (the α) ranges between 0 and 1. If the scale tested has a score of 0.7 and higher, the scale is reliable.

In terms of research in the social sciences, calculating the validity of a variable can prove to be unwieldy, due to the fact that these variables are mostly latent variables (Field 2009; Montgomery 2009). It is for this reason that these latent variables are conceptualized as constructs, with differing and measurable concepts. The cumulative reporting on the concepts offers an inference about the overarching constructs that the concepts form part of (Field 2009; Montgomery 2009). The challenge in terms of this method (which is employed in the current research as well) is to ascertain whether or not these concepts do indeed all reflect the same construct (latent variable), or simply whether or not the measuring of these concepts are valid. In order to test this validity statistically, use is made of factor analyses.

Factor analysis is a method or technique employed to identify groups or clusters of variables. Simply put, it measures the correlations between variables (or concepts) to see whether or not they speak to the same underlying dimension (or latent variable, or construct). In terms of questionnaire construction, various items are included to measure the same latent variable. A factor analysis can thus be used to extentify the correlations between these items, and as they are designed to measure the same latent variable (which inherently implies that they are indeed related and should thus correlate), inferences can be made with regard to the validity of these variables. What needs to be understood, also as a limitation to this research, is that factor analyses are sample sensitive, and are, at best, population specific.



Findings

Based on the theoretical and empirical exploration and evaluation, four broad themes of internal communication for a conducive safety climate in a construction site environments were identified – by names holistic, strategic, relational and symmetrical communication. Below, each one of these concepts with their underlying constructs will be discussed in depth, leading to the graphical representation of the findings (showing the expansion of Mohamed's (2002) model, as presented in Figure 1).

Holistic

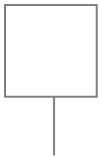
Holistic communication speaks to the point that communication management does not exist in isolation in construction site environments. In order for communication to be holistic, it needs to be reinforced and integrative. Table 2 below gives the factor loadings and Cronbach's α of the Holistic concept, and the identification of its two underlying constructs.

Table 2. Factor loadings and Cronbach's alpha for Holistic concept

	Reinforced	**Integrative**
Applying safety procedures in the working environment	0.804	0.093
Reporting safety problem: action taken by middle management	0.759	0.327
Reporting safety problem: action taken by immediate work colleagues	0.755	0.231
Reporting safety problem: action taken by safety department as a whole	0.709	0.403
Reporting safety problem: action taken by unions	0.693	-0.144
Safety communication changing the way work is done	0.511	-0.028
Being encouraged to work safely	0.061	0.840
Being encouraged to work safely in a team	0.049	0.837
Amount of information received: safety expectations and performance	0.557	0.791
Amount of information received: production expectations and performance	0.090	0.679
Amount of information received: organisational safety success and failures	-0.264	0.620
Cronbach's Alpha value:	**0.825**	**0.892**

Reinforced

Reinforced internal safety communication is basically defined as safety communication that is substantiated in actuality. The climate of the organisation experienced by employees should reflect the strategic goals and objectives of the organisation. The perceived importance of safety and the strategic intent of the organisation should be reinforced by the actions of the organisation. Put simply, one participant in the focus group summarised: "*The organisation should not only 'talk the talk' of safety communications, but should 'walk the walk' as well*".



In order to do this the safety parameters conveyed by means of safety communication should be realized – for example by enforcing regulations, rules, policies and the like. The climate of the organisation should therefore be that internal safety communication is not only an aspect that the organisation pays lip service to, but something that takes hold in its everyday activities.

Integrative

Internal safety communications in construction organisations should be integrative on two levels: on a functional, and an individual level. In terms of the former; cross-functional and cross-sectional integration between facets, sections and functions of the organisation is needed. Herein, safety communication should not be seen as the responsibility of **only** safety personnel on site – but of all in the organisation. The example was raised in the focus groups that production foremen might contradict safety communication if it means "*getting the work done faster*". When this is done, a discord is perceived, and the safety climate of the organisation could suffer resultantly. Construction managers should, in this instance, work towards having all functions of the organisation collaborate to fostering the safety climate.

In terms of the latter, integration of individuals to the greater safety communication cause should take place. Individuals should, by means of internal safety communications, be made aware of their place and contribution towards the organisation's overarching safety objectives and successes. If individuals are integrated in this way (for example by means of personalized feedback), they will arguably take responsibility and accountability (or more so) for their own safety involvement or input in the organisation's safety climate.

Strategic

In many (if not most) organisations within the construction industry, internal safety communication is headed and implemented by safety personnel who are not necessarily competent, or even equipped communicators. Resultantly, internal safety communication holds the risk of being run only on a technical or baseline practical level – an aspect that featured strongly in the interviews with managers. The risks of this is that internal safety communications can become loose hanging, operating singular, compartmentalised actions that do not link up with one another, or the strategies and objectives of the organisation. Rather, internal safety communications should be strategic and purposeful in nature seeing to two constructs; tactical and interpretive communications, as depicted in Table 3, showing the factor loadings and Cronbach's α.

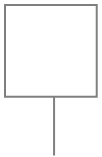


Table 3. Factor loadings and Cronbach's alpha for Strategic concept

	Imperative	Tactical
Amount of information received regarding safety performance versus expectations	0.812	0.211
How important safety is for the management of the organisation	0.774	0.097
Organisation's **behaviour** with regards to applying safety procedures on site	0.546	-0.218
All job levels being able to accurately describe the organisation's safety objectives	-0.204	0.817
Safety messages being supported by strong arguments regarding importance	0.355	0.814
Safety communication messages' alignment to broader organisational goals	0.090	0.737
Cronbach's Alpha value:	**0.834**	**0.699**

Tactical

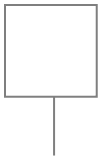
Although the technical aspects of safety communications are seen as important, it is stressed that tactical safety communications should be driven by the mission, goals and objectives of the organisation as a whole with each aspect or activity thereof directly traceable to a specific objective(s) or goal(s). In this way, the safety communication has resolve and is purposeful, with not merely loose-standing or fragmented messages. This will allow employees to relate to the underlying and encompassing intent of the safety climate, even if singular safety messages are left out of the equation. This aspect holds even more credence considering the fact that organisations in the construction industry have to abide by goals set by government or governing bodies, if they are to be allowed to operate (an aspect stressed in, especially, interviews with managers). These bodies therefore set safety goals and objectives for the organisation which are to be realized if the organisation sees itself survive. Internal safety communication has to be in service to these goals and objectives, aiding in its attainment, which can only be done if it is tactical in its strategic nature.

Imperative

Strategic safety communication should also be imperative, by forming part of the considerations of the dominant coalition in the organisation, so as to allow the formulation and forwarding of safety objectives and goals, and eventually a conducive climate within the organisation. If safety communication does not hold a seat within the dominant coalition of the organisation, this organisation will not be in a position to formulate objectives that are mindful of the aims of the safety climate.

In turn, if the organisation and its dominant coalition do not consider safety and safety communications enough for it to hold an equal right in this circle, then the chances are that the organisation's employees will take the same stance of nonchalance or inconsequentiality. Conversely, if safety communication holds a seat in the dominant coalition of the organisation it is in a position to contribute to the realization of its justified importance, which underlies any conducive safety climate.

Relational



The relational factor of communication stresses the fact that employees should feel that the organisation is concerned, can be trusted and is committed to their safety – in other words, employees should have a good safety relationship with the organisation. The relational factor has three underlying constructs, as gleaned from the empirical stages of the study: supportive, trusting and committed safety communications (seen below in Table 4).

Table 4. Factor loadings and Cronbach's alpha for relational concept

	Supportive	Trusting	Committed
Organisational support without expecting anything in return	0.854	-0.009	0.135
Organisational concern of employee welfare	0.831	0.105	0.241
Organisation not only taking care of those who are likely to reward it	0.725	0.503	-0.183
Trust (safety department as a whole)	0.169	0.855	-0.100
Trust (immediate work colleagues)	-0.100	0.805	0.199
Trust (unions)	0.533	0.653	0.236
Trust (supervisors)	0.487	0.542	-0.025
Organisation being relied upon to keep its promises	-0.037	0.833	0.120
Organisation wanting to maintain a relationship with employees	0.728	0.614	0.831
Loyalty towards organisation	0.517	0.658	0.806
Pleased / happy to be part of organisation	0.612	0.348	0.777
Satisfaction with organisational relationship	0.577	0.352	0.534
Cronbach's Alpha value:	0.921	0.920	0.856

Supportive

Both the organisation and employees need to cultivate a relationship wherein all concerns raised are regarded and weighed up in sincerity. This way the relationship, and in turn the safety climate, will be seen as supportive to concerns and needs of either party. Closely related to this point, the relationship itself should also be founded in a concern on the part of each of the parties to the other's welfare. The relationship should display the characteristics of a communal relationship wherein the parties do not only offer benefit to the other due to the fact that they expect something in return (as would be the case in an exchange relationship), but because they are genuinely concerned about the other's welfare – specifically their safety. Once the relationship is seated within this genuine concern for the safety and welfare of the other, as well as earnest assurances of legitimacy, the relationship and ensuing climate can be regarded as being supportive. This includes, as per one of the participants of the focus groups that "[Employees] *should feel as if… like… in safety… we should not feel as if [the organisation] is only doing safety because of the government, because they <u>have to</u>, you know. It should be as if… it should be because they are concerned for us*".

Trusting

One of the most important aspects to the organisational-employee relationships is trust. If it is considered that employees are placing their very lives in the hands of the organisation, then it is understood why trusting is such an important aspect for a conducive safety climate. One of the greatest aspects to be present in internal safety communications, in order for trust to be established in the ensuing relationship, is confidence.

Each of the parties to the relationship, but especially employees, should have confidence in terms of their own, as well as the other party's competence in guarding safety. Crystallising the importance of trust, one employee remarked in one of the focus groups: "*When I feel that* [the organisation] *is not competent in keeping me safe, I will not listen, but will do as I think is best to not get hurt*". The organisation should manifest confidence in itself, and make sure that employees trust them in terms of their safety. In order to establish this confidence, and eventual trust, organisations need to ensure that they engage the employees in an honest and open manner, not excluding them or being deceitful in terms of safety aspects.

Committed

Only once there is commitment in the organisational-employee safety relationship, the relationship will wield all of the benefits expected of it (for example a positive safety climate). In order for employees to feel that the relationship is worth their energy to promote and maintain, the organisation should ensure that the internal safety communication is of such a nature as to assist and generally be worthwhile to the employees. As one of the managers interviewed remarked: "*If the safety communication does not offer accurate and new or relevant information, employees will not necessarily feel that the safety relationship with the organisation is worthy to maintain*". This shows that the organisation needs to be strategic and purposeful in their communication to their employees, as inferior safety communications will not entice commitment form the employees. Likewise, the organisation should show its own commitment to the relationship, if they expect the employees to be committed in return.

Symmetrical

The last main theme to be discussed centres on symmetricity in internal safety communications, which should be balanced in its own right, not being disproportionate in the ways in which it sends or receives information on any organisational level. From the empirical exploration, three constructs are identified, namely accessible, responsive, and informative safety communications, as outlined per factor loadings and Cronbach's α in Table 5 below.

Table 5. Factor loadings and Cronbach's alpha for symmetrical concept

	Informative	Accessible	Responsive

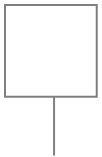
Safety information availability	0.788	-0.012	0.152
Frequency by which employees are updated with information	0.745	0.032	0.137
Quality of safety information	0.719	-0.025	0.163
Information regarding government action affecting workplace safety	0.668	0.126	0.281
Information regarding organisational safety policies	0.551	0.472	-0.367
Practical applicability of safety communication	0.548	0.299	0.056
Opportunity to request clearer instructions and relay problems	0.026	0.844	-0.180
Lower levels feeling that top management understand safety issues	-0.024	0.798	-0.185
Opportunity to express opinions: safety performance of immediate manager	0.287	0.771	-0.294
Opportunity to express opinions: doing work safely	0.106	0.631	-0.031
Action taken by middle management upon reporting a safety issue	0.194	0.348	0.796
Action taken by immediate work colleagues upon reporting a safety issue	0.255	0.038	0.771
Action taken by supervisor upon reporting a safety issue	0.119	0.377	0.768
Action taken by safety department upon reporting a safety issue	0.431	0.095	0.747
Action taken by training department upon reporting a safety issue	0.006	0.016	0.723
Action taken by senior and top management upon reporting a safety issue	0.311	-0.042	0.679
Cronbach's Alpha value:	0.832	0.861	0.839

Accessible

Accessible internal safety communication is open communication that promotes participation and full disclosure. In terms of this, accessible safety communications encourage and endorse a **participative** climate wherein all employees are open to make suggestions, take part in joint decision-making, are empowered through communication and the sharing of information to truly contribute towards the reaching of organisational goals, as per one of the managers "*in an even-handed climate that promotes teamwork*".

Responsive

No matter how accessible internal safety communication is to employees, it does not contribute much if it is not responsive alongside it. In keeping with a participative climate, the input and feedback generated from employees due to the accessible nature of the safety communication should be **responded to**, or taken into account by the organisation, in order to be responsive. As one employee remarked "*Any organisation can have a suggestion box, but what do they do with the suggestions we put in it?*". Simply put, the content generated by the feedback of the internal safety communications in its accessible element should be interpreted, taken into account, and where applicable, acted upon in the organisation.



Informative

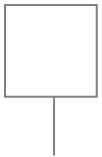
The last and very basic, if not anticipated element of symmetrical internal safety communication is informative safety communication. At the rudimentary level, internal safety communication should offer guidance to employees as to how to do their job safely, and as was seen in the integrative element, under the holistic factor, this should be directed and relevant to each employee and their specific job situation.

Adjacent to this, employees should not only be informed about doing their jobs safely, but should also be informed about external events, such as government policies which govern what constitutes safe work procedure. In this way (and yet again linking back to the element of personal integration) employees are empowered to not only see their personal or individual place within the safety operations of the organisation, but also where they fit into the bigger picture – into the overall safety climate of the organisation.

Conclusion

Taking the constructs and concepts of internal safety communication – as discussed above – into consideration, the amended model of Mohamed (2002) can be graphically represented as in Figure 1 – noting that the original factors of Mohamed (2002) remain, with elaborations and alterations to the aspect of communication.

As is shown in the model, communication should not be seen as an independent, atomistic factor to safety climate, but as a meta-factor influencing all others identified. When viewed in this way, communication becomes a driving force that shapes the manner in, or degree to which all other factors contribute to safety climate construction and maintenance. Furthermore, it is seen that communication is not unidimensional, but comprises four factors – each with their own constructs. For communication to contribute to the management of the safety climate of the organisation, it needs to firstly be holistic, as it situates itself alongside all other functions of the organisation, making sure that it does not compete with, but act congruent to them. Secondly, safety communication should be strategic, where the messages conveyed are not 'loose hanging', but linked directly to the strategic objectives of the organisation. Thirdly, the organisation needs to foster a relationship with employees that is based on genuine concern for their safety. Employees should feel that the organisation is competent and that they can trust the organisation with their personal safety. If not, employees will not necessarily feel that the organisation 'knows best', and they might feel that they are better off following their own minds. Lastly, safety communication should be informative and accessible to employees, as and whenever they need it. This communication should also be responsive to the inputs of employees as there should be a symmetrical balance between the amount of information sent and the amount of input accepted from employees. These factors of communication gives



way to a shared understanding in the organisation, which shapes and fosters a safety climate conducive to realising the safety goals of the organisation through the management of communication therein.

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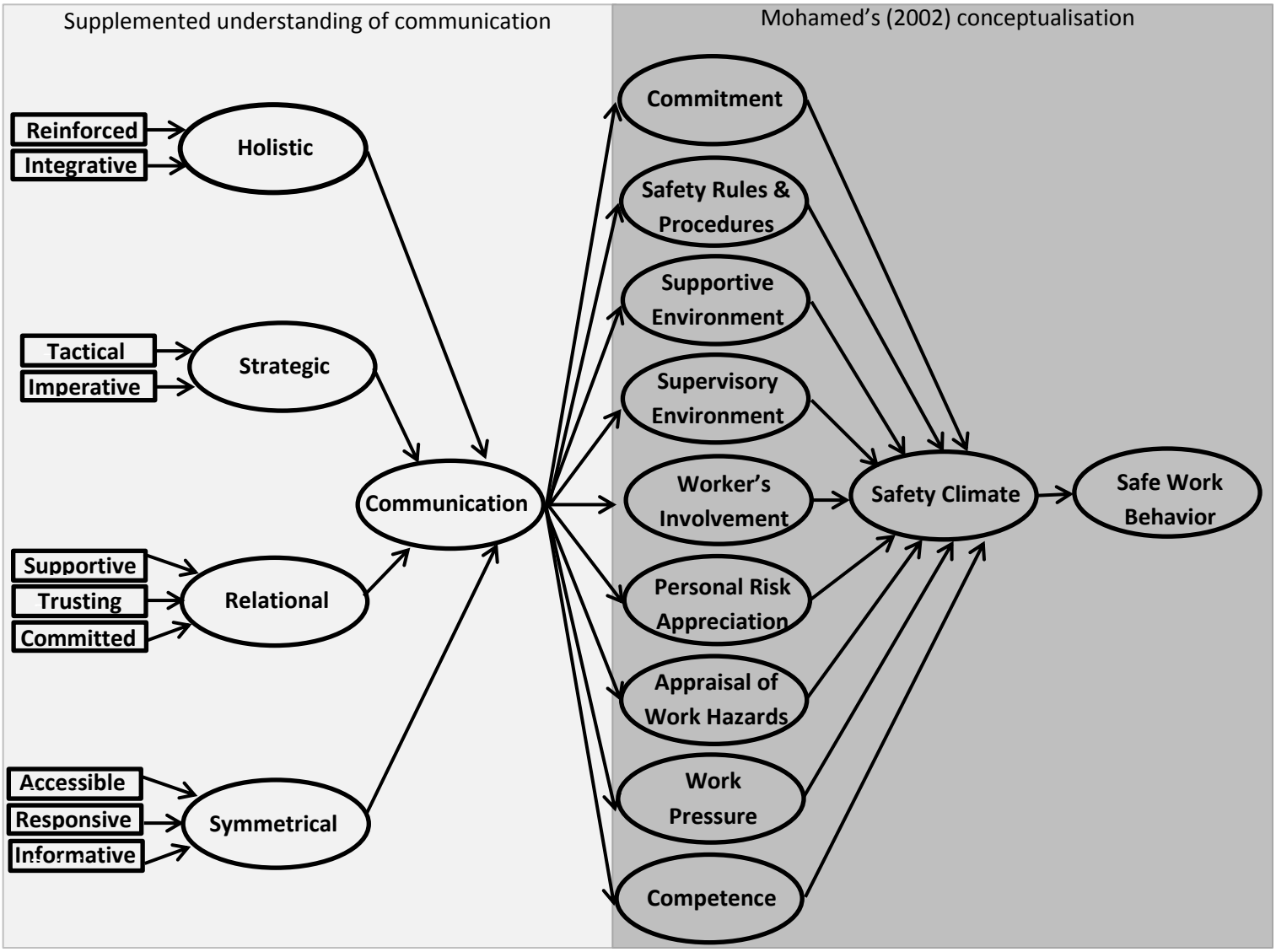

Figure 1: Model of safety climate including the role of communication