UNIVERSITY OF THE WITWATERSRAND

FACULTY OF HUMAN AND COMMUNITY DEVELOPMENT

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The New Scale of Occupational Functional Communication Demands (SOFCD): Developing a Measure of Competence required in Workplace-Communication-Skills in Jobs.

Melissa Phillips

A research project submitted in partial fulfilment of the requirements for a Master of Arts degree, by coursework and research report, for Organisational/Industrial Psychology in the Faculty of Humanities, University of the Witwatersrand.

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Declaration

I declare that:

The New Scale of Occupational Functional Communication Demands (SOFCD): Developing a Measure of Competence required in Workplace-Communication-Skills in Jobs.

is my own work, that is has never been submitted for any degree or examination in any other university, and that all sources I have used or quoted have been indicated and acknowledged by complete references.

Signed ……..

Melissa Phillips
August 2017

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ABSTRACT

Background and Aims

Organisations cannot function without communication, however, it is the effectiveness and appropriateness of the communication that is vital to organisational effectiveness. The undisputed need for the assessment of communication competence skills is evident in selection and recruitment, job profiling, performance evaluation, and the development of focused skill orientated training. However, no existing individual instrument adequately measures communicative competence in South African workplaces as a number of unique barriers to interpersonal communication within SA workplaces are unaccounted for in established conceptualisations of workplace communication competence, informing communication assessment approaches and methodologies. Thus, the overarching aim of the current research is to develop a workplace communication assessment scale of routine verbal task-related communication skills, which is contextually and representationally valid, and accommodates contextual social features of South African organisations, relevant in judgments of communication competence. In realising this aim the development of an alternative conceptualisation of SA workplace communicative competence was required. The future establishment of criterion referenced norms for specific jobs would be of practical utility to Human Resources (HR) in the customisation of organisational and job specific communication assessment tools and focused interventions.

Method

In Phase 1 a broad, inclusive representative item pool was reduced by frequency analysis and collapsing/deleting semantically similar items to 69 retained routine SA workplace communication behaviours. In Phase 2, the 69-item experimental scale was administered to a 303 SA working sample. Competing factor structures were evaluated according to exploratory factor analysis (EFA) model fit indices, pre and post item deletion, followed by confirmatory factor analysis (CFA) to differentiate superior model fit. Lastly, the psychometric properties of the resultant scale, in terms of convergent and divergent validity with two existing measures (CCQ (Monge, Bachman, Dillard, & Eisenberg, 1982)) and the SRC (Cupach & Spitzberg, 1981)), as well as reliability, were evaluated.

Results

The 63-item eight factor model demonstrated the best fit in terms of an even distribution of primary factor loading across the factors, a single non-loading item, no theoretically incompatible item cross-loadings, an even distribution of variance across factors, and the most conceptually interpretable pattern of factor loadings. Additionally, Phase 2 provided evidence of the scale's content, structural, convergent, and discriminant validity, and reliability.

Discussion

SA respondents differentiated eight subcategories as a basis for evaluating how they communicate at work. This suggests greater dimensionality relative to other workplace communication competence measures. The differentiation of the Higher Order Language subscale (i.e. the understanding of abstract and inferential language) suggests a broader conceptualisation of workplace communication skills as required by competent communicators in SA workplaces.

Conclusion

This research has offered an alternative conceptualisation of workplace communication competence, and developed a valid, reliable, communication assessment scale, from diverse disciplines and theoretical orientations, that measures all dimensions of routinely occurring interactional task-related communication skills within SA workplaces. This communication competence framework facilitates the efficient production of tailored job-specific criterion referenced norms for the immediate customisation of job-specific communication assessment tools and focused interventions. The utility of the new scale extends beyond Industrial/Organisation Psychology practice to inform return to work (RTW) rehabilitation in Speech Language Pathology.

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CHAPTER 1

RATIONALE

Organisations serve society, shareholders and owners by producing market-satisfying products and/or services efficiently (i.e. using the lowest input of scarce production factors), which enables them to earn a profit, when the market value of the goods/services exceeds the production investment value (Theron, 2017). The profitability of organisations depends on work performance, and communication is an important behavioural performance dimension (Theron, 2017). However, research and organisations propose that although communication skills are fundamental to all jobs, it is the competence, or level of effectiveness of communication in accomplishing a specific outcome, as well as the appropriateness of communication to a context, that is important (Bendix, 2010; Morreale, 2009), and specific effective communication skills are required for particular jobs (Hetzner, Gartmeier, Heid, & Gruber, 2009; Sageev & Romanowski, 2001). Furthermore, certain levels of assessed job-relevant behavioural competencies are related to job-outcomes (dependent on the standard of the outcome, and the criterion-predictor relationship) (Theron, 2017). The need for a South African scale of job-relevant communication competence requirements in selection and recruitment, job profiling, performance evaluation, and the development of skill orientated training, development, and coaching, becomes apparent.

However, there is little consensus regarding what workplace communication skills actually are, which specific skills are most important in specific jobs, and how such skills should be assessed (Spitzberg, 2011). Emanating from diverse theoretical conceptualisations of communicative skills and communicative competence within research are countless approaches and assessment methodologies across disciplines (Greene & Burleson, 2003; Spitzberg, 2011). In the context of such a "diverse and fragmented conceptual and methodological landscape" this research aims, firstly, to develop an alternative conceptualisation of workplace communication skills (Spitzberg, 2011, p. 147). A unique conceptualisation of workplace communication competence is necessary in the South African (SA) workplace due to a distinct set of factors that impact the effectiveness of interpersonal workplace communication. The diversity in South African organisations, due to equal opportunity legislation, affirmative action programs, and globalisation, result in complex inter-cultural, inter-lingual interpersonal communication (Faranani Facilitation Services, 2013; Gildenhuys, 2008; Human, 1996; Uys, 2014). Messages are filtered through interlocutors' cultural frameworks resulting in less effective communication (Bendix, 2010; Singh & Rampersad, 2010). Entrenched bilingualism in the multilingual South African workplace (11 official languages) leads to semantic barriers between the sender and the receiver (Mwaniki, 2012). Additionally, conflictual interpersonal interaction may be exacerbated by our legacy of racial discrimination (Bendix, 2010; Faranani Facilitation Services, 2013; Uys, 2014).

Furthermore, this research aims to development a measure of communication competence across jobs (i.e. according to the level of communication competence employees perceive as required in their jobs). This descriptive South African communication competence framework across jobs would facilitate the future establishment of criterion referenced norms for specific jobs (i.e. establishing empirical links between the level of competence in these communication behaviours and job-specific performance outcomes) and would be of practical utility to Human Resources (HR) in the customisation of organisation-specific, and job-specific communication assessment tools (assessment outputs tailored to specific jobs) and focused interventions (i.e. in selection and recruitment, job profiling, performance evaluation, and the development of skill orientated training, development, and coaching).

Reviewed measures of communicative competence, across disciplines, revealed that no individual instrument adequately measured the conceptualisation of workplace communication skills proposed by this research (i.e. the subjective assessment of observable (behavioural, verbal), functional, molecular level, task/work-related communication skills, embedded within social interaction, on a continuum of communicative competence) required across South African jobs. The Communication Work Efficacy scale (CWE) ((Keyton, et al., 2013) shares many common conceptualisations of workplace communication skills with the underlying framework of the current research in assessing workplace communication competence requirements, however, there are concerns regarding the factor and dimensionality structure of the measure. Existing research, the SOFCD (Penn et al., 1998), offered an exemplar of a scale measuring functional, molecular-level, task/work-related communication skills, pertinent to competency, within the South African organisational context, and was a starting point for this research.

South Africa's unique social features, and post-apartheid legislation (The Labour Relations Act 66, of 1995, The Employment Equity Act, 55 of 1998, and, The Integrated National Disability Policy Framework) governing procedural justice in South African assessment instruments and procedures, further rationalise the need to develop an ecologically sound and representationally valid communication competence scale. The proposed scale measuring competence in workplace communication, conforms to the standardised international workplace assessment Competency Approach (the objective assessment of competencies to meet job demands), while allowing for contextual customised cultural appropriateness (Bartram, 2004).

Thus, this research has both theoretical and practical value. Firstly, it aims to develop an alternative integrated conceptualisation of workplace communication skills which accommodates the contextual features of South African organisations. Secondly, this research is tasked with the development of a workplace communication assessment scale of routine verbal task-related communication skills, which is contextually and representationally valid, and accommodates contextual social features of South African

organisations relevant in judgments of communication competence, and can be further scaled for the evaluation of the communication requirements of South African job roles.

CHAPTER 2

LITERATURE REVIEW

The success of an organisation no longer depends solely on strategies to contain costs, increase market share, leverage new technologies, enter new markets, strengthen customer relationships, and recruit and retain top talent, but effective internal communication behaviours distinguish organisations on financial and organisational gains (Yates, 2006). Research reports that organisations with effective internal communication behaviours have higher market share, higher shareholder return on investments, over five years, higher levels of employee engagement, and lower employee turnover, than companies with less effective communication (Yates, 2006). More specifically, higher communication effectiveness, indicated by a 1 SD difference, is associated with a 19.4% higher market share, and effective communication is reported to be a driver, rather than an outcome of financial performance (Yates, 2006). In a study by Giri and Kumar (2010) organisational communication competence explained 16% of the variance in self-reported job performance. Higher communication effectiveness leads to high engagement. A significant positive relationship between employee engagement and financial performance, predicts that effective communication ultimately results in better financial results (Yates, 2006). Turnover is estimated to equate to 48% to 61% of the annual salary of the resigned position, and organisations with higher numbers of efficient communicators have lower turnover than their competitors (Yates, 2006). Additionally, less time and money is spent on recruitment and training of new staff, and the organisation benefits from a skilled engaged workforce (Yates, 2006). An additional benefit of positive organisational communication is its buffering effect on the negative consequences of job insecurity (Jiang & Probst, 2014).

This literature review is tasked with the following.

1. The development of an alternative conceptualisation of workplace communication skills, appropriate to South African workplaces.
2. The selection of a guiding theoretical framework appropriate to this alternative conceptualisation.
3. The development of a definition and foundational assumptions for workplace communication competence skills.
4. Existing measures of workplace communication and communication competence skills will be reviewed to assess the availability of an adequate measure operationalising the alternative conceptualisation of workplace communication skills within the organisational context.

1. THE ALTERNATIVE CONCEPTUALISATION OF WORKPLACE COMMUNICATION SKILLS

In order to offer an alternative conceptualisation of workplace communication skills, appropriate to South African workplaces two distinct bodies of theory and research will be reported: (A) Communication literature, and (B) Communicative Competence literature.

A. COMMUNICATION LITERATURE

Three bodies of research and theory conceptualising workplace communication skills from various theoretical orientations will be reported, and their applicability to the conceptualisation of workplace communication behaviour/skills in the SA workplace will be evaluated.

Firstly, existing traditional theoretical frameworks of organisational communication (i.e. Fisher's four theoretical organisational communication frameworks (Fisher, 1978)) will be individually discussed, and their applicability to the conceptualisation of communication in SA workplaces will be summarised.

Secondly, the discussion of four broad definitional perspectives of interpersonal communication will locate workplace communication skills within interpersonal relations, pertinent to the South African workplace. I will focus on Burleson's (2010) Message-Centred Interpersonal Approach in more detail, to inform the conceptualisation of South African interpersonal workplace communication.

Thirdly, Sptizberg's (2003) conceptualisation of interpersonal communication skills will be reviewed.

Finally, I will draw on various conceptualisations of workplace communication, previously discussed, and to a larger extent the work of Burleson (2010), and, Sptizberg (2003, 2008), Spitzberg and Dillard (2002) to conceptualise a definition of workplace communication skills which meets the unique characteristics of South African workplaces.

Theoretical Conceptualisations of Organisational Communication

Krone, Jablin and Putnam (1987) reconceptualised Fisher's four theoretical communication frameworks to reflect organisational communication processes: The mechanistic perspective, The psychological perspective, The interpretive–symbolic perspective, and The systems interaction perspective.

Mechanistic perspective. Researchers who adopt a mechanistic perspective, conceptualise organisational communication as a transmission–reception communication chain with obstructions and breakdowns. According to Fisher (1978) four assumptions underlie the mechanistic perspective. Firstly, communication channels are considered conduits for the direct linear causal transmission of communication between the speaker and listener (Krone et al., 1987). Secondly, communication characteristics are linked together in a chain like relationship (e.g. the message source influences the message clarity, which affects the receiver's message reception and decoding (Johlke, 1997)). Within

transmission–reception communication chains, communication breakdown may occur due to interference, delays, blockages and filtering due to noise, barriers/obstacles, breakdowns and gatekeeping (Jensen, 2003). Thirdly, messages have tangible spatial and physical properties (e.g. frequency and duration) (Jensen, 2003; Johlke, 1997). Fourthly, communication can be broken down into smaller units for further analysis (Fisher, 1978).

The psychological perspective. Unlike the mechanistic perspective, the psychological perspective has a receiver-orientated focus, which emphasises the influence of perception and cognition on communication (Jensen, 2003; Sindhav & Adidam, 2005). Communication is selectively filtered by internal cognitive processes (attitudes, cognitions and perceptions) before processing, and is further influenced by the interpretative processing of the message (Jensen, 2003; Sindhav & Adidam, 2005).

The interpretive–symbolic perspective. Communication within the interpretive–symbolic perspective is controlled or interpreted, within a social interaction, by culturally and socially shared constructed understandings (e.g. organisational culture, and cultural factors) (Daft & Weick, 1984; Jensen, 2003). Meanings are ultimately created, maintained, and modified through social interaction. Congruence or consensus in interpreting similar communication meaning is reliant on congruent cultural factors in the interpretative process, while in the mechanistic and psychological perspective, congruence is achieved through accurate message transmission and similarity in conceptual filters between communicators, respectively (Jensen, 2003). Researchers use discourse analytic and rhetorical approaches to micro-analyse conversational turns or acts/interacts.

The systems interaction perspective. The systems interaction perspective examines the patterns or sequential development of verbal and non-verbal messages, using category coding systems, to identify re-occurring patterns of communication (Holmes, 1992). For example, systems interaction researchers may study small group decision-making to determine patterns of negotiation (Holmes, 1992).

The mechanistic perspective identifies variables obstructing communication channels, and psychological perspectives focus on the filtering effects of attitudes, cognitions, message content, and information transmission. The interpretive-symbolic and systems-interaction perspectives are process theories. Thus, research emanating from these organisational communication perspectives has most often focused on the directionality and flow of information, attitudinal influences on communication, the structure of the communication i.e. various cultural/societal process, and reoccurring patterns of communication (Penley & Hawkins, 1985). These approaches have focused on the factors influencing communication interactions, and have failed to conceptualise the nature of the communication. The purpose, content, and context of the communication has been largely ignored.

Definitional Perspectives on Interpersonal Communication

The widespread lack of consensus about what is meant by interpersonal communication has lead to the identification of four board definitional perspectives: The Situational Perspective, The Developmental Perspective, The Interactional Perspective, and The Message-Centred Models, as discussed below (Burleson, 2010).

The Situational Perspective. From the situational perspective, interpersonal communication is defined as, "a dyadic communication in which two individuals, sharing the roles of sender and receiver, connected through the mutual activity of creating meaning" (Trenholm & Jensen's, 2008, p. 29). The focus is on dyadic interpersonal communication, and thus research centres on the impact of various contextual factors on communication processes and the outcomes of interaction (e.g. the number communicators and their physical proximity, channels of communication, the immediacy of feedback received) (Burleson, 2010). This often results in a theoretical understanding of the impact of manipulated situational variables on the communication process, without consideration of other contextual features (Burleson, 2010). In congruence with the situational perspective the current study conceptualises workplace communication as interactional communication, located in workplace dyads, however, a broad range of the contextual features of South African workplaces (e.g., cultural diversity and multi-lingualism) are accommodated.

The Developmental Perspective. The developmental perspective focuses on the processes of interpersonal communication, as relationships develop along a continuum from impersonal to interpersonal (Burleson, 2010). In impersonal communication, interactants rely on stereotypical social roles, and general cultural and sociological knowledge, to infer listener's reactions (Burleson, 2010). Conversely, in interpersonal communication, conversational partners use knowledge of the other's psychological characteristics (e.g., distinguishing traits, dispositions, or attitudes), to predict listener reactions (Burleson, 2010). This body of research has been criticised for not analysing the message (Burleson, 2010). The current study does not focus on the development of the workplace relationship, but rather emphasises the message content transmitted, embedded in interpersonal communication.

The Interactional Perspective. The interactional perspective focuses on investigating the patterns and sequences of messages within interpersonal interactions (Burleson, 2010). "Interpersonal communication refers to the exchange of messages, verbal and nonverbal, between people, regardless of the relationship they share" (Guerrero, Andersen, & Afifi, 2007, p. 11). In agreement with the interactional perspective this research regards all workplace communication as embedded in social interaction, and goal-directed, however, an equal emphasis is placed on the message.

In answer to these three perspectives' disregard for the significance of the "message", Burleson (2010) proposed an underlying conceptual model for the study of interpersonal communication, in which

communication is conceptualised as social interaction focused on the processes of producing and interpreting messages (Burleson, 2010). A message-centred definition was proposed, "Interpersonal communication is a complex, situated social process in which people who have established a communicative relationship, exchange messages in an effort to generate shared meanings and accomplish social goals" Burleson (2010, p. 151).

The Message-centred Approach

In response to the inadequacies of the previous organisational and interpersonal communication approaches reviewed, Burleson's (2010) message-centred definition and underlying conceptual model will be reviewed in terms of the following. Firstly, the three assumptions of the message-centred perspective will be discussed. Secondly, the four message-centred processes, and the role of social perception will be reviewed. Thirdly, contextual influences on the four basic interpersonal communication processes will be discussed. Finally, I will discuss the conceptual applicability of certain aspects of Burleson's (2010) message-centred definition and underlying conceptual model in defining SA workplace communication skills.

Assumptions of the Message Centred Approach. According to Burleson (2010) establishing an interpersonal communicative relationship involves recognising the speaker's intention to convey an internal state, and the recipient's intention to understand, thus communication relies on the recipient's ability to interpret the source's intended message (Burleson, 2010). Three assumptions underlie the message-centred model. Firstly, interpersonal communication is comprised of: (1) Message Production (generating verbal and non-verbal behaviours), (2) Message Processing (message reception or decoding), (3) Interactional Coordination (synchronising expressive and receptive language), and (4) Social Perception/Pragmatics (Burleson, 2010). Secondly, interpersonal communication is influenced by many situational factors e.g. roles, identities, and goals (Burleson, 2010). Thirdly, interpersonal communication is a social process in which communication processes are mutually executed and coordinated (Burleson, 2010).

Message Production. Many theoretical models and their variants have explained message production, and have informed Burleson's (2010) overarching generic six-step message production process (e.g. Berger's (2007) Planning Theory (explaining the achievement of communication goals), Dillard's (2008) Goals-Plans-Actions Theory (a similar goal-driven model of interpersonal influence), and Greene's (2007) Action Assembly Theory (how an individual's thoughts get transformed into action). The six-step message production process begins with the interpretation of the presenting situation, which gives rise to interactional goals. Existing message plans/schemas are retrieved from memory. In the absence of an appropriate plan, a new plan is generated. The abstract message plan (either retrieved or generated) is "populated with appropriate content and subsequently articulated" (Burleson,

2010, p. 154), and re-adapted and re-articulated as considered necessary (Burleson, 2010). In congruence with the message-centred approaches' focus on the messages that are expressed, comprehended and coordinated, within interpersonal communication, other disciplines study messages from different perspectives (e.g. speech language pathologists, linguists and social linguists, social psychologists, communication researchers, conversational analysts, sociologists, and anthropologists). The message-centred approach proposes that people express and comprehend messages to accomplish three *social goals or functions:* interaction management functions (establishing/maintaining a background of coherent conversation, to pursue other goals), relationship management functions (initiating, maintaining and repairing relationships), and instrumental functions (focusing on the goal of an interaction e.g. gaining/resisting compliance) (Burleson, 2010). Extensive research has focused on taxonomies of these three functions, and the nature, dimensions and outcomes of particular communicative functions, efficacy and moderators of certain functions, and the abilities and motivation to perform message strategies with desired outcomes (e.g. Dillard, 2003).

Message Processing. Burleson (2010) proposed a generic eight-step message processing procedure: Message detection (message parsing into words and phrases), the syntactic, semantic, pragmatic, and intention analysis of the message, as well as the recipient's internal evaluations of the message's truth appropriateness, and sincerity. Research in message processing has focused on the impact of attitudes on processing information (Goodall & Ewoldsen, 2011), and, how recipients correct for perceived bias in a message (Hewes, 1995). The dual-process model (Bodie & Burleson, 2009; Burleson, 2010) proposes that the effectiveness of supportive communication depends not only on two message features (content and context), but on how thoroughly those features are processed by the recipient of the message, which culturally determined. In low-context cultures, the content of the message is processed extensively and has the strongest effect, and conversely, in high-context cultures (i.e. cultures focusing on contextual features e.g. who sent it, relationship between sender and recipient) the content is superficially processed and has a less significant effect.

Interactional Coordination. Co-ordinated exchange of messages requires a pragmatic knowledge of the social rules governing particular exchanges (e.g. turn-taking, topic management, and rules on contributions and comments in different message exchanges) (Burleson, 2010). Burgoon, Floyd, and Guerrero's (2012) Interaction Adaptation Theory describes how individuals achieve highly synchronous interactions through two processes: Behavioural reciprocity (i.e. the degree of involvement in the interactant's communication style), and Matching (imitating the interactant's paralinguistic behaviour). The Interaction Adaptation Theory, and, The Communion Accommodation Theory (Giles & Ogay, 2007; Giles, Coupland, & Coupland, 1991) describe how conversational partners convey solidarity through convergence in a range of linguistic-prosodic-non-verbal features (e.g. imitating the interactant's speech rate, pausing, utterance links, phonological variants, smiling,

and gaze) or divergence, to express discord between self and others, through emphasising divergent-group stereotyped phonological features, abrasive humour, verbal abuse and interactional disillusion.

Social Perception. Social perception informs communication by defining the social situation, the interactants, their roles, and their cognitive, affective, and behavioural qualities, evaluating the comprehension and acceptance of messages, and how parties in the transaction feel about each other (Burleson, 2010). Research focuses on the acquisition of social perception processes (Burleson, 2010).

Finally, the message-centred definition emphasises the situatedness of interpersonal communication (Burleson, 2010). Burleson (2010) proposes that context profoundly influences the four basic interpersonal communication processes as follows. Firstly, context (e.g. the roles people occupy in contexts) affects the form, the style of the language, as well as the content of messages produced (Burleson, 2010). Secondly, context influences the comprehension and outcome of messages (e.g. which features of the message receive attention, and the depth of processing, meaning assigned to context or content, and contextually appropriate responses (Burleson, 2010)). Thirdly, context shapes how people coordinate their interactions (e.g. turn taking, and devices used for controlling turns on topics e.g. raising a hand to signal interest) and the degree of convergence versus divergence attained (Giles et al., 1991).

The current research adheres to Burleson's (2010) fundamentals of interpersonal communication (i.e. the reciprocal nature of message production and interpretation, and a shared symbol system), and supports Burleson's four communicative processes as follows. Firstly, the four components of interpersonal communication (message production, message processing, interactional coordination, and social perception/pragmatics) demonstrate a conceptual overlap with the broad second-order domains/conceptualisations (Expressive, Receptive, and Pragmatics) of workplace communication, used in the current study. Secondly, in congruence with Burleson's (2010) conceptualisation of messages as goal-directed or functional the current study acknowledges the goal-directed nature of workplace communication, which is central to defining communication as work (tasks). Thirdly, the current study conforms to the idea that social perception or pragmatic knowledge informs communication in numerous ways, as seen in observable verbal pragmatic behaviours. This research shares Burleson's (2010) emphasis on the situatedness of interpersonal communication i.e. the influence of context and culture, in multi-cultural SA workplaces.

Spitzberg's Conceptualisation of Interpersonal Communication Skills (Spitzberg, 2003, 2008; Morreale, Spitzberg, & Barge, 2013)

According to Spitzberg (2003, p. 95) Interpersonal Communication Skills are defined as "intentionally repeatable, goal-directed behaviours and behavioural sequences in a given context". In other words, skills are behaviours directed towards the achievement of goals in a given context (Morreale,

Spitzberg, & Barge, 2013). The following key concepts explain the nature of interpersonal communication skills.

- *Interpersonal Communication Skills are actions or behaviours* performed by a person. Skills are a manifestation of one's knowledge of how to communicate, and the motivation to do so in accomplishing a communication goal (Morreale et al., 2013). More specifically, communication goals unconsciously influence the selection of morphemes composing words, and the relationship of words within syntax (Morreale et al., 2013). Increased knowledge leads to a deeper and broader repertoire of behaviours available for selection, and increased motivation results in a more meticulous search of the existing pool of knowledge in selecting the most appropriate behaviours. Although communication skills are a product of motivation and knowledge processes, in assessment, communication skills are considered as a distinct domain, and assessment focuses on the objective/subjective evaluation of the quality/competence of the performed communication behaviour, rather than the underlying motivation and knowledge processes (Spitzberg, 2008).
- *Communication skills are distinct from competence.* Spitzberg (2008) differentiates between "skills", a person's ability to perform behaviours necessary to accomplish a goal, and "competence", indicating the evaluative component of skills, or the level of appropriateness and effectiveness of the communication behaviours, as perceived by self or others. Although, motivation, knowledge, and skills generally contribute towards perceptions of competence, skills are behaviours, and any given behaviour may be subjectively viewed as competent by some, and incompetent by others (Morreale et al., 2013). Additionally, communication behaviours are further subjectively evaluated for perceived effectiveness and appropriateness in terms of: culture, temporal organisation, the type of relationship between interactants, the social situation (e.g. formal -informal), and the goal of the interaction (Morreale et al., 2013). In summary, the competence of a skill depends on what is perceived, interpreted and evaluated, and specific skills will achieve better subjective perceptions/impressions of appropriateness and effectiveness, thus optimising the perceptions of competence (Morreale et al., 2013). However, Spitzberg (2008) acknowledges that some of these presumptions may be built into an assessment. Competence will be more fully discussed later in this literature review.
- *Communication skills are goal directed*. Communicative skills/behaviours are directed towards achieving desired outcomes or goals in a given context (Spitzberg, 2003). However, beyond individual communication goals, in an interactional dyad, communication goals are mutually accomplished through interaction (Spitzberg, 2008). For example, two conversational partners, with different culturally informed conflict management skills (conformity/avoidance versus competitive/combative), may not mutually accomplish their individual desired goals, rendering their conflict management skills ineffective (Morreale et al., 2013).

- *Communication skills are deliberate/intentional and repeatable.* In order to be classified as a "communication skill", the communication behaviour should be intentional and repeatable at will (Spitzberg, 2008).
- Skills enact the *behavioural sequences* of their supporting scripts (e.g. the communication behavioural script for initiating, maintaining and terminating a conversation appropriate to a specific context), with some flexibility (Morreale et al., 2013). Skills are contextual, in that the goals they intend to achieve depend on the context in which they are performed (Morreale et al., 2013).
- *Skills exist abstractly at many different levels*. Communication behaviours range from specific level skills (e.g., behaviours such as gesture, eye contact, smiling, vocabulary, articulations, vocal variety) to general level skills (e.g., assertiveness, self-disclosure, social support, conflict management, deception, and wit) (Morreale et al., 2013). Communication competence depends on selecting the appropriate specific level skills to meet the general level skills (Morreale et al., 2013).

Conceptualising SA Workplace Communication Skills from Reviewed Literature

Taken together, Burleson's (2010) conceptualisations of communication behaviours in "message production" has been further conceptualised by Spitzberg (2003) as deliberate/intentional and repeatable "skills". Spitzberg (2002, 2003) has further expanded the concept of interpersonal communication to encompass the observable behavioural outcome of the motivation and knowledge processes, which can be subjectively evaluated in terms of competence. Spitzberg (2003) expanded on Burleson's (2010) conceptualisation of the goal-directedness of communication behaviours, by proposing that *skills* are directed towards the achievement of preferred outcomes or goals, in a given context. The influence of context on communication behaviours has been differently conceptualised in the two models under discussion. Burleson (2010) recognises the influence of context on the four communication processes, while Spitzberg (2003) suggests that goals are tailored to specific contexts, and thus skills required to meet these goals are contextually influenced. Spitzberg (2003) conceptualises skills as existing at various different levels of abstraction (i.e. microlevel skills compose macrolevel skills) with limited recognition of midlevel molecular communication behaviours falling into broad second-order conceptualisations (expressive, receptive, and pragmatics), and first-order conceptualisation (interactional pragmatics) of communication/language. Burleson (2010) conceptualises expressed messages as conforming to four langauge processes (message production, message processing, interactional coordination, and social perception/pragmatics), and, three categories of goal-directed messages (interaction management functions, relationship management functions, and instrumental functions).

Thus, drawing on Spitzberg's (2003) and Burleson's (2010) frameworks of interpersonal communication, this research conceptualises workplace communication skills as the directly observable behavioural content of workplace communication, which is embedded in interpersonal/relational interaction, and directed towards specific communicative functional goals/purposes. Workplace communication skills are measured at a molecular level of abstraction (e.g. asking questions) adhering to the broad second-order conceptualisations of language reflected in Burleson's (2010) four language processes. In congruence with Spitzberg (2003) this research conceptually separates communication skills from competence, the evaluated quality of performed behaviour.

B. COMMUNICATIVE COMPETENCE

"We are seldom interested in the brute fact of whether or not someone can merely perform a behaviour, or even a sequence of behaviours, in the social realm. The vast majority of the time, particularly in the realm of social action, the concern is how well a class or group of behaviours can be performed, and the standards of quality in this regard are intrinsically social and subjective in nature" (Spitzberg, 2007, p. 4). This section of the literature review aims to broaden the conceptualisation of workplace communication skills to incorporate the inherently subjective socially evaluative phenomenon of "communicative competence." With this in mind, I will: (1) Review various definitions of communicative competence across disciplines, and three models of communicative competence, (2) The core conceptual dimensions of organisational communicative competence, from various organisational theoretical perspectives, (3) The conceptualisation of relational communicative competence, from the theoretical perspective of four categories of relational communicative competence models, and (4) The conceptualisation of intercultural communicative competence.

(1) Defining Communicative Competence

Communicative competence is a construct that seems to have as many definitions as there are researchers (Wiemann, Takai, Ota, & Wiemann, 1997). Although communicative competence has been widely studied in different contexts across numerous disciplines, with considerable attention to interpersonal communication, a lack of conceptual consensus exists both within and across disciplines.

Early linguistic competence conceptualisations were limited to a focus on language-based knowledge and performative competence (Chomsky, 1965; Hymes, 1972). The Chomskyan conceptualisation of communication competence as purely the linguistic or grammatical competence of an ideal speaker-hearer, was replaced by Hymes's (1972) sociolinguistic perspective. Hymes (1972) defined communicative competence as the ability (skill) to use grammatical competence in performative communicative situations, thus both knowledge and ability (skill) are required to be perceived as competent i.e. grammar and pragmatics (e.g. turn taking). The competence of the individual and the interactant, as well as the interactional event are considered (Šimunek, n.d). Applied linguists, further

developed the concept of communicative competence during the 1970s and 1980s (Bagarić & Mihaljević Djigunović, 2007). Widdowson (1983) defined communicative competence in terms of competence (knowledge of linguistic and sociolinguistic conventions) and capacity (the ability to use knowledge), thus focusing on performance (Bagarić & Mihaljević Djigunović, 2007).

Thus, taken together with other theoreticians (e.g., Bachman & Palmer (1996)) communicative competence is dynamic, interpersonal, relative, rather than absolute, contextually defined, and manifest in performance (Bagarić & Mihaljević Djigunović, 2007).

Models of Communicative Competence

Theoretical and empirical research on communicative competence is largely based on three models of communicative competence, the model of Canale and Swain (1980), Bachman and Palmer (1996), and the Common European framework (CEF) (2001).

Canale and Swain

According to Canale and Swain (1980) and Canale (1983) communicative competence is understood as the combination of four underlying knowledge competence areas. *Grammatical competence* (linguistic competence enabling a speaker to use both knowledge and skills for comprehension and expression of utterances), *Sociolinguistic competence* (mastery of contextually specific rules/conventions, or contextually appropriate pragmatics), *Discourse competence* (mastery of cohesion and coherence rules), and *Strategic competence* (the mastery of compensatory conversational repair strategies) (Bagarić & Mihaljević Djigunović, 2007; Chomsky, 1965; Peterwagner, 2005). Canale and Swain (1980) included the concept of skill, referring to how an individual uses the four competencies in the actual production and comprehension of utterances (Peterwagner, 2005). "Skill" was differentiated from "underlying capacity" and its manifestation in performance.

Backman and Palmer

Bachman and Palmer (1996) proposed a more complex and comprehensive model of Communicative Language Ability (CLB), in which CLB involved both *Language competence* and *Strategic competence* (Peterwagner, 2005). Language competence was classified into two types (Peterwagner, 2005). Firstly, *Organisational competence*: (1) *Grammatical competence* (knowledge of vocabulary, morphology, syntax and phonology) and (2) *Textual competence* (written language conventions and conversational schemas) (Peterwagner, 2005). Secondly, *Pragmatic competence* comprised: (1) *Illocutionary competence* (world knowledge, ritualistic phatic language, ideational functions e.g. using language creatively), and (2) *Sociolinguistic competence* (pragmatic knowledge of appropriate contextual language) (Peterwagner, 2005). Secondly, *Strategic competence* or metacognitive knowledge is the ability to, (1) choose a fitting communication goal, and decide whether to follow through with it, (2) assess the match between one's language ability and the required appropriate

contextual language e.g. topic knowledge, and (3) plan how to make use of language competencies to successfully complete the task.

The Model of Communicative Language Competence (CEF) (2001)

This model includes three basic knowledge components, which are defined in terms of their content and applicability: *Language Competence*, *Sociolinguistic Competence*, and *Pragmatic Competence* (Bagarić & Mihaljević Djigunović, 2007). Strategic competence is excluded. The subcomponents of *Language Competence* are lexical, grammatical, semantic, phonological, orthographic and orthoepic competencies (Bagarić & Mihaljević Djigunović, 2007). *Sociolinguistic competence* infers the possession of knowledge and skills/ability enabling language appropriate to the social context (Bagarić & Mihaljević Djigunović, 2007). The last component, *Pragmatic competence* involved two subcategories, *Discourse competence*, and, *Functional competence*. Both included *planning competence* which refers to sequencing of messages in accordance with interactional and transactional schemata (Bagarić & Mihaljević Djigunović, 2007).

Table 1. Comparison of Communication Competence Models.

Model	Linguistic competence	Sociolinguistic competence	Pragmatic competence	Discourse competence	Strategic competence
Canale and Swain	√ Grammatical competence	√		√ Cohesion Coherence rules	√ Compensatory strategies
Backman and Palmer	√ Grammatical Textual Competence	√ Pragmatic competence: Illocutionary competence Sociolinguistic competence		√ Textual Competence	√ Goal development Language ability demands Language competencies
The Model of Communicative Language Competence	√	√	√ Discourse competence Functional competence (Planning competence)		

The three models of communication competence share underlying conceptualisations of the domains of competence in, Linguistic competence, Sociolinguistic/Pragmatic competence, and Discourse competence (Table 1). The locus of competence within the models is narrowly conceptualised in terms of only individual knowledge and skills acquired and applied in various language domains (e.g., rules and conventions of grammar, sociocultural rules and conventions, cohesion and coherence rules, compensatory strategies to address grammatical or sociolinguistic or discourse breakdown). The current research draws on these three models of communicative competence in conceptualising the first-order (Pragmatics) and second-order (conversational Repair) domains of verbal workplace communication in the Foundational Assumptions of Workplace Communication. In search of a more comprehensive conceptualisation of communicative competence, various conceptualisations of communicative competence in organisational literature are reviewed.

(2) Communicative Competence in Organisations

In organisational research definitions of communicative competence have reflected what theorists regard as the most salient issues of the construct. *McCroskey (1982)* and *Larson, Backlund, Redmoind, and Barbour (1978)* equated competence with only knowledge, distinct from performance/behaviour.

In contrast to the above conceptualisations, *Weimann (1977)* defined communicative competence in terms of five behavioural dimensions: other-orientatedness, socially relaxation, empathy, knowledge (having a large enough behavioural repertoire to meet the demands of changing situations), and being supportive of others' face, while successfully accomplishing own goals in any given interaction (Weimann, 1977).

Jablin and Sias (2001) expanded on McCroskey's (1982) conceptualisation of communication competence to include behaviour/performance, and effectiveness/goal-achievement within a "resource-orientated" definition of competence (i.e. the intrinsic resources to use in communication). Resources included, strategic communication knowledge (e.g., knowledge of appropriate communication rules and norms) and communication knowledge (Jablin & Sias, 2001). Additionally, Jablin and Sias (2001) conceptualised communicative competence within four bidirectional ecological levels: The microsystem (organisational members and associated colleagues), the mesosystem (interrelations between microsystems), in which competence acquired in one domain may affect competence in another, the macro system (organisational major divisions or the organisation as a whole), and the exosystem (overarching ideologies) (Jablin & Sias, 2001). This conceptualisation of competence at a systems, group and organisational level has lead to further conceptualisations of communicative competence embedded within each of the systems (Shockley-Zalabak, 2015). Although beyond the scope of the current research, extending interpersonal competence dimensions to globalised organisational settings broadens the scope of communicative competence judgements beyond face-to-face workplace dyadic interactions (Shockley-Zalabak, 2015). Thus, communication competence could be evaluated in multiple interactions across stakeholder groups, global interactions often mediated by communication technologies, intercultural communication, and communication across permeable organisational boundaries (Shockley-Zalabak, 2015).

From *a "skill sets" perspective*, competence is defined in terms of social cognition knowledge and communication skills, e.g. advertising, persuading, instructing, interviewing, exchanging information, public speaking, leading discussions, delegating, problem-solving, and listening (Ayoko, Hartel, & Fischer, 2004; DiSalvo, 1980; Wellmon, 1988).

A frequent approach within the organisational context has been to conceptualise workplace communication competence in terms of the achievement of goal-directed behaviour (Jablin & Sias, 2001). Monge et al., (1982, p. 506) propose that "competent communicators are those who are

effective at achieving their goals" within their performance-based behavioural approach. Parks (1994) offers a more specific goal-orientated conceptualisation of communicative competence in which communicative competence is the degree to which individuals satisfy, and perceive that they have satisfied their goals, within social contextual limits, while still pursuing important primary goals. Work goals within organisational settings are a familiar concept as they are publically and explicitly prescribed within job descriptions, and conflicting goals are often renegotiated in performance appraisals, thus predisposing organisations to an acceptance of goal-directed communication competence (Monge et al., 1982). Although Monge et al.'s (1982) conceptualisation has lead to positive advancements in the assessment of competence in workplace communicative skills, as required to achieve work tasks, it has disregarded the essential interpersonal relationships in which all workplace communication is embedded. Thus, Monge et al. (1982) regarded workplace communication relationships as "non-interpersonal."

Spitzberg and Cupach's (1984) original criteria: appropriateness and effectiveness, form the foundational standards for judging communicative competence in many current conceptualisations. Within the Relational Competence Model, competence is "the subjective evaluation of communication quality", that is a function of a communicator's motivation (approach/ avoidance orientation to communication), knowledge (cognitive content and procedural dynamics of interaction), and skills (repeatable goal-directed action sequences in message production and interaction) (Spitzberg, 2011, p. 147). Payne (2005) extends the original Spitzberg and Cupach's (1984) definition of communication competence to be more contextually sensitive to communicative competence in organisations. "Organisational communication competence is the judgement of successful communication where interactants' goals are met using messages that are perceived as appropriate and effective within the organisational context. Communication competence in organisations involves knowledge of the organisation and of communication, ability to carry out skilled behaviours, and one's motivation to perform competently" (Payne, 2005, p. 64).

Table 2. Representation of Core Dimensions of Communicative Competence across Definitions

Organisational Communicative Competence Conceptualisations	Knowledge	Skills	Motivation	Behaviours	Goal orientatedness
McCroskey (1982); Larson, Backlund, Redmoind, and Barbour (1978)	√				
Weimann (1977)				√	
Jablin and Sias (2001)	√			√	
"Skill sets" perspective	√	√			
Monge et al. (1982)				√	√
Spitzberg and Cupach (1984)	√	√	√	√	√

Organisational definitions of communicative competence offer a wider perspective on communicative competence than the general models, previously described. Taken together organisational definitions move beyond the two core dimensions of communicative competence (knowledge and skills) proposed by the general models, to encompass motivation, goal-orientated behaviours, as well as organisational contextual factors. However, the majority of these definitions demonstrate incomplete representations of the full set of communicative competence core dimensions (Table 2). A notable exception is Spitzberg and Cupach's (1984) definition in which the full set of core dimensions is represented (Table 2). Furthermore, this definition draws attention to the absence of relational competence within the other reviewed definitions. Relational models of communication competence are thus reported below.

In congruence with this literature the current research conceptualises verbal workplace communication as goal-directed behaviour which is contextually and subjectively assessed (Jablin & Sias, 2001; Monge et al., 1982; Spitzberg & Cupach, 1984; Weimann, 1977). Similarly, verbal workplace communication is conceptualised according to the second-order domain, Pragmatics, and the following first-order domains: Instructing, Leading, Persuading/influencing, Interviewing, Formal presentation/ public speaking, Discussing, Information exchange, Listening, Social composure, and Empathetic communication skills, Altercentrism, and Problem solving/conflict resolution/negotiation (Ayoko, Hartel, & Fischer, 2004; DiSalvo, 1980; Jablin & Sias, 2001; Payne, 2005; Weimann, 1977; Wellmon, 1988).

(3) Relational Models of Communication Competence

Relational models of communication competence can be categorised according to their focus, resulting in the following four categories of competence models: (1) The Dispositional Models, (2) The Process Orientated Models, (3) The Message Focus Models, and (4) The Relational System Models (Wiemann, et al., 1997) (Table 3). The four categories of competence models differ on the following dimensions, as discussed below, *definition* of competence, *locus* of competence (e.g. within individuals or contextual), *contextual environmental challenges* which test the communicative competence of an individual, the *outcome* of competent communication (i.e. indices of success in interaction), and *cultural implications* (i.e. different cultural conceptions of competence in communication) (Wiemann et al., 1997).

Dispositional Models

Within *dispositional models*, social communicative competence is conceptualised as an intrinsic trait or inherent ability/skill which facilitates coping with contextual challenges in social interactions, thus competence resides within individuals (Keyton, et al., 2013; Wiemann et al., 1997). Contextual variables and cultural variability are not addressed (Wiemann et al., 1997). The following four sub-models focus on different dispositional traits and skill competencies which enable individuals to manage the contextual challenges imposed by social interaction (Wiemann et al., 1997).

Interactional/Conversational Involvement Models locate competence in an individual's inherent cognitive ability or pragmatic knowledge of the appropriate interactional behaviours in a social context (Wiemann et al., 1997). Three sub-components have been delineated, Perceptiveness (the ability to assign appropriate attribution to others' behaviour), Responsiveness (responding in an appropriate manner at the right time), and Attentiveness (cognisance of others' behaviours) (Cegala, Savage, Brunner, & Conrad, 1982). Competence is evident in appropriate verbal and non-verbal behaviours in interactions (Wiemann et al., 1997).

In *Adaptability Models*, competence is located in the dispositional ability of an individual to perceive social-interpersonal relationships and adapt their behaviour to facilitate effective goal achievement (effectiveness), while maintaining culturally appropriate interactional norms, i.e. not violating rules (appropriateness) (Wiemann et al., 1997). The six dimensions of adaptability include: social experience, social confirmation (acknowledging partner's goals), social composure, appropriate disclosure (being sensitive to the amount and type of information disclosed), articulation (the ability to express ideas through language), and wit (the ability to use humour in adapting to social situations) (Wiemann et al., 1997; Duran, 1992).

Within the *Intercultural Communicative Competence Model (ICC)* competence is located in the individual's ability to adapt communication to the demands on an intercultural environment and facilitate intercultural communication (Kim, 1992). Three dimensions of ICC are delineated, cognitive, affective and behavioural, which enable this adaptation. "Cultural environments are treated as a data field where individuals take in information to enrich their competence"(Wiemann et al., 1997, p. 29).

Communicative competence from a *Behavioural/Social Skills Perspective* is defined "as the ability to execute communicative behaviours in order to achieve one's goals, while maintaining another's face" (Wiemann et al., 1997, p. 29). Wiemann (1977) proposes that communicative competence, or other-orientateness, is composed of five dimensions, interaction management, affiliation/support, empathy, behavioural flexibility, and social relaxation. Competence is located within an individual's traits and is expressed at an interpersonal level (Wiemann et al., 1997). Contextual and cultural variability have been disregarded in this model (Wiemann et al., 1997). The outcome of successful communicative competence is the achievement of a goal, within a smooth interaction (Wiemann et al., 1997).

Process-Orientated Models

In Process-Orientated Models, competent communication is developed through a process by which individuals use their inherent dispositions and skills to manage various "central constructs" (e.g., uncertainty, anxiety, identity, face) in order to prevent miscommunication (Wiemann et al., 1997). For example, within Gudykunst (2005)'s Anxiety/Uncertainty/Management (AUM) Model, effective, competent communication is achieved through an individual's inherent ability to control cognitive

uncertainty and affective anxiety (Wiemann et al., 1997). Competence is located within the interlocutor dyad, and although cultural variability is incorporated, contextual variables have been disregarded in the following two sub-models (Wiemann et al., 1997).

From the *Communicative Resourcefulness* perspective communication competence is defined as the process of effective identity negotiation within a dyad (Ting-Toomey, 1993). The ability of individuals to facilitate effective identity negotiation processes depend on individuals' cognitive, affective, behavioural, and ethical, communicative resources or dispositions (Wiemann et al., 1997). In other words, competent communicators manage relational dialectics (i.e. security versus vulnerability, and inclusion versus exclusion), to perform identity coordination efficiently. Although perceptions of competence are relationally located, in the dyad, individual level dispositional traits and skills ultimately build competence (Wiemann et al., 1997). Cultural variability in individualism/collectivism shapes the locus of identity (i.e. an independent or an interdependent understanding of self, respectively) (Wiemann et al., 1997).

In the *Identity Management Approach* communication competency is conceptualised as the process of identity renegotiation within three relationship development stages, which involve negotiating three dialectic tensions (Cupach & Imahori, 1993). The ultimate outcome of competent communication is relational intimacy, and the realisation of identity support and integration of mutual identities (Wiemann et al., 1997). Competency is located both in each individual's skills at negotiating identity, and the relational and processual communication skills in managing dialectic tensions to negotiate identity (Wiemann et al., 1997). Cultural knowledge facilitates identity management, and contextual variables are not included in this model (Wiemann et al., 1997).

Message Focus Model

Thirdly, the *Message Focus Model* defines communication as competent in terms of the message content and manner of delivery (Wiemann et al., 1997).

Within the *Interactive Constraints Model*, competence resides in the use of appropriate and effective conversational language strategies to achieve a goal, and overcome two interactional constraints, face support (for relational maintenance) and message clarity (the explicitness of expressed intentions) (Wiemann et al., 1997). Thus, competence is revealed in the use of language in a particular situation, as judged by others. Cultural variability affects interactive constraints (Wiemann et al., 1997).

Likewise, communicative competence in *Functional Communication* is conceptualised in terms of the expressive production, and receptive processing of messages, as well as pragmatic language, which enable the efficient and effective achievement of personal and social goals, e.g. Message production (generating verbal messages), message processing (understanding communication from others) and

social perception (interpreting communication in terms of the social reality) (Burleson, 2007; Keyton et al., 2013).

The various models of relational communication competence reviewed place emphasis on a single or a few dimensions of communicative competence (Table 3). For example, Dispositional Models focus on inherent traits and skills, while disregarding the interactive relational and process nature of communication, as well as the linguistic competence within the messages. Process Orientated Models emphasis the management of interaction processes, facilitated by individual relational traits and skills, with the outcome of competent communication realised in the negotiation of identity and relational intimacy, while disregarding the linguistic competence with the messages. In Message Focus Models the functionality and appropriacy of the message content and manner of message delivery takes precedence over relational processes. In view of the limitations of each model an integrated model of communication competence should, firstly, incorporate all the dimensions mentioned above. Secondly, as communicative competence is ultimately subjectively judged within a relational interaction, a more creative approach would be to incorporate both specific individual features that facilitate impressions of competence from the viewpoint of a conversational partner, in a specific episode of interaction, and individual relational competencies across relationships (Spitzberg, 2012).

In accordance, the current research conceptualises verbal workplace communication as embedded with social interaction, and thus dependant on the ability of interlocutors to achieve contextually appropriate (Pragmatic) and effective (goal-directed) communication. The conceptualisation of relational communication competence across these models is further reflected in the current study's second-order (Pragmatics) and first-order workplace communication conceptualisations: Interpersonal Relationships (communication establishing/maintaining constructive cooperative working relationships e.g. building trust, using humour and networking), Helping (requesting/offering assistance/care and specialist advice to organisational teams and individual members), and General Pragmatics including Phatic Utterances, Social Composure, Empathic communication, Altercentrism, and Appropriate Self-Disclosure.

Conceptualisation of Intercultural Communicative Competence

In the South African multicultural workplace, a model integrating intercultural competence is called for. However, current intercultural communication models (ICC) models focus exclusively on only intercultural communication (e.g. Kim, 1992), and offer lists of skills, abilities and attitudes for competent intercultural interaction and adaptation, without considering contextually salient communication skills. Alternatively, existing communicative competence models incorporate cultural interpretations of the concept of competence, to avoid possible cultural bias, as an afterthought (Spitzberg & Cupach, 1989). A more inclusive understanding of intercultural communicative

competence within a generalised model, at the interpersonal interactional level, would offer a platform to operationalise intercultural communicative competence within the proposed scale.

Relational Systems Models of Communicative Competence.

The following seven axioms of intercultural communicative competence, "people are more similar across cultures and they are different, judgements of competence are subject to several systemic conditions, competence as a judgement is evaluated most universally in terms of quality, competence judgements are related to skills, and to motivation and knowledge, and finally, people - not cultures - interact" are incorporated into the Relational Systems Models of communicative competence (Spitzberg, 2012, p. 424). Thus, the Relational Systems Models of Communicative Competence focuses their attention on individuals in the dyad and the relational interaction. Communicative competence is located within individuals i.e. in knowledge (procedural and content knowledge), motivation, and skills, which impact subjective judgements of the effectiveness and appropriateness of communication, and, competence resides in the dyad and depends on the context (Wiemann et al., 1997) (Table 3).

In conclusion, the alternative conceptualisation of workplace communication skills, as previously discussed, and three assumptions of an underlying model: the incorporation of all dimensions of competence, the subjective assessment of communicative competence, and, the incorporation of intercultural communicative competence, link to two highly respected inter-related theoretical frameworks, The Motivation, Knowledge, and Skills Model of Competence (Spitzberg, 1983; Spitzberg & Cupach, 1984; Spitzberg, 2003), and Spitzberg's (1994) Model of Intercultural Communication Competence. The Motivation, Knowledge, and Skills Model has been successfully applied to organisational communication research in Keyton et al. (2013) and Shockley-Zalabak (1988), and, with the Model of Intercultural Communication Competence, guides this research.

Table 3. Comparison of Models of Relational Communication Competence

MODEL	CONCEPTUALISATION OF COMPETENCE	COMPETENCE LOCATED				CONTEXT VARIABLES	CULTURAL VARIABILITY
		Individual	Relationship	Relational Processes	Messages		
DISPOSITIONAL MODELS	Intrinsic trait or inherent ability/skill facilitates coping with social contexts.	√	-	-	-	N/A	N/A
Interactional/ Conversational Involvement Models	Inherent cognitive ability or pragmatic knowledge to achieve appropriateness.	√	-	-	-	N/A	N/A
Adaptability models	Dispositional ability to adapt behaviour to achieve effectiveness and appropriateness	√	-	-	-	N/A	N/A
Intercultural communicative competence (ICC)	Ability to adapt communication to the demands on an intercultural environment.	√	-	-	-	N/A	√
Communicative competence	Ability to execute communicative behaviours to achieve one's goals (effectiveness), while maintaining appropriateness.	√	-	-	-	N/A	N/A
PROCESS-ORIENTATED MODELS	Processes by which individuals use traits/skills to manage "central constructs" within interactions	√	-	√	-	N/A	√
Communicative Resourcefulness	Managing relational dialectics to negotiate identity within a dyad.	√	√	√	-	N/A	√
Identity Management	Managing relational dialectics within three relationship development stages to achieve relational intimacy and integrate mutual identities.	√	√	√	-	N/A	√
MESSAGE FOCUS MODEL	Message content and manner of delivery.	√	-	-	√	N/A	√
Interactive Constraints Model	Appropriate and effective conversational language to overcome face support and message clarity, in achieving a goal.	√	√	√	√	N/A	√
Functional Communication	Appropriate (pragmatic), clear massage generation and comprehension.	√	-	-	√	N/A	N/A
RELATIONAL SYSTEMS MODELS		√	√	-	√	N/A	N/A

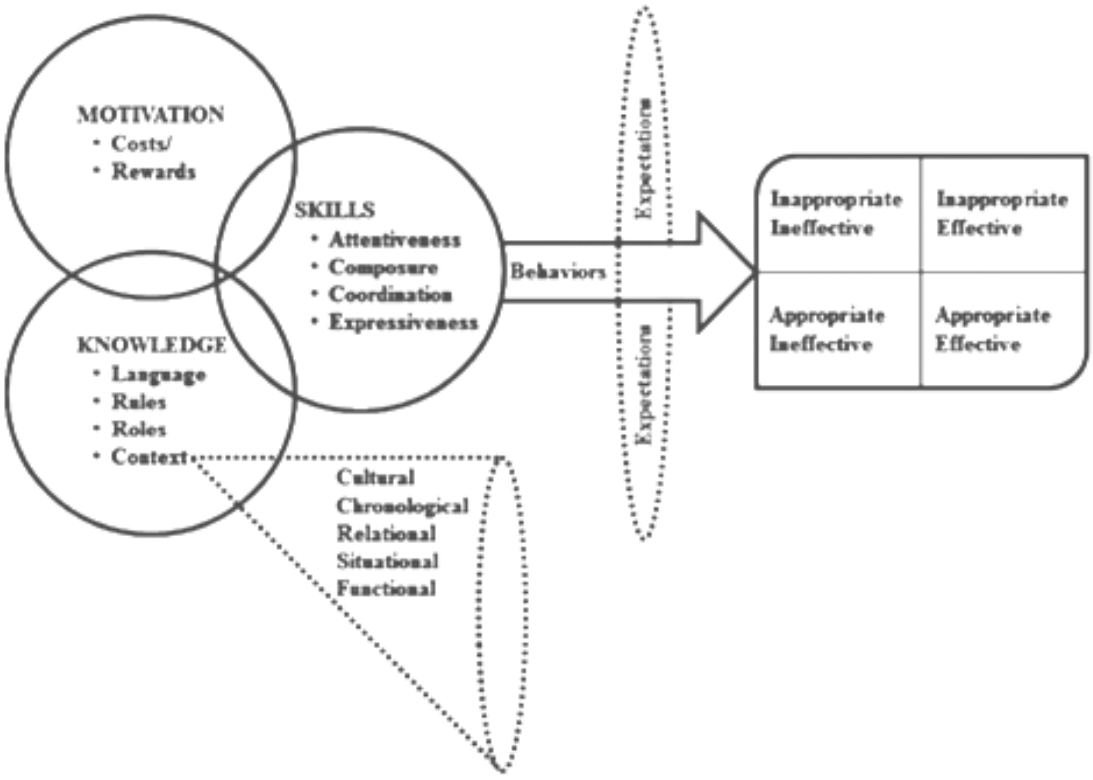

Figure 1. Model of Communication Competence (Spitzberg, 2013).

2. UNDERLYING THEORETICAL MODELS

THE MOTIVATION, KNOWLEDGE, AND SKILLS MODEL OF COMPETENCE (Spitzberg, 1983, 2003; Spitzberg & Cupach, 1984)(Relational Competence Model, Component Model of Competence)

As previously discussed, Spitzberg (1983) describes competence as constituted of personal components: motivation (affect), knowledge (cognition), and skills (psychomotor abilities), and contextual components (norms, rules, patterns of interaction, setting, and activities) (Figure 1). Both personal and contextual components are important in the subjective attribution of competence in organisations (Payne, 2005). Firstly, a competent communicator possesses "motivation", which falls within a trait, anxiety framework (Richmond & McCroskey, 1992; Payne, 2005). Secondly, competent communicators must have "knowledge" in terms of procedural and content knowledge (Payne, 2005). Content knowledge includes speech articulation, gesture, paralinguistic (e.g. vocal and pitch control) and proxemic aspects of communication (Morreale, 2009). Procedural knowledge involves knowing how to select and adapt scripts appropriate to social situations (Payne, 2005). Within the organisational context, competence involves procedural knowledge of what is appropriate and effective, the standard/style of communication, channels of communication, and the chain of command (Payne, 2005). The third component, "skills", refers to "deliberate, repeatable, goal-orientated behaviours that manifest both one's knowledge of how to communicate and the motivation to do so" (Morreale, 2009, p.448). In other words, skills are the actual performance of behaviours (Morreale, 2009). Skills required by organisations include, amongst others, relationship building, listening, following instructions, giving feedback and information exchange (Maes, Weldy, & Icenogle, 1997).

According to Spitzberg (1983) and other researchers, communicative competence is subjectively judged on perceptions of "effectiveness" and "appropriateness" (Morreale, 2009). Effective communication is subjectively judged on the extent to which the communication accomplishes a specific goal or outcome, and is directly related to appropriateness (Morreale, 2009). Appropriateness is evaluated in terms of the violation of rules (prescribed behaviours) and norms (recurrent patterns of behaviour/expectations) of a given context (Morreale, 2009).

MODEL OF INTERCULTURAL COMPETENCE (Spitzberg, 1994).

The propositions underlying the model of intercultural competence are divided into three levels of analysis, namely the individual system, the episodic system, and the relational system (Spitzberg, 1994).

At the *individual system level*, the more motivated, knowledgeable and skilled an individual is, the more competent the individual will be (Spitzberg, 1994). However, high levels in one or two areas may lead to perceptions of an individual as highly competent (Spitzberg, 1994).

The first proposition of the individual system states that as communication motivation increases, communicative competence increases (Spitzberg, 1994). Individuals with high levels of communicative confidence and self-efficacy beliefs, as well as certain inherent approach dispositions or traits are more likely to be motivated to communicate (Spitzberg, 1994) (Figure 2). Additionally, individuals are more motivated to pursue an interaction where the perceived benefits of the course of action outweigh the potential costs, relative to alternatives (Spitzberg, 1994). For example, asking for directions from a second language English speaker may be considered too much effort, relative to reading a map, trial-and-error exploration of the area, or consulting someone who speaks your language for directions (Spitzberg, 1994). However, communication motivation alone is inadequate to produce competent communication (Spitzberg, 1994).

Thus, the second proposition states that as communicative knowledge increases, communicative competence increases (Spitzberg, 1994). The types of generalised knowledge required by competent communicators are summarised in Figure 2. Competence in intercultural interactions requires the development of a culture specific store of "task–relevant procedural knowledge" which is acquired through various "knowledge–acquisition strategies" (Spitzberg, 1994, p. 384). Individual "knowledge–dispositions" facilitate information processing of culturally relevant knowledge within interactions (Spitzberg, 1994, p. 384).

The third proposition states that as communicative skills increase, communicative competence increases (Spitzberg, 1994). In addition to motivation and knowledge, competent communicators require skills to perform their motivation and knowledge (Spitzberg, 1994). The following four skill types facilitate intercultural communication competence and are elaborated on in Figure 2: altercentrism, composure, expressiveness, and interaction management (Spitzberg, 1994).

The *episodic system* includes features of a speaker that contribute to being recognised as competent by conversational partners, within a single episode of interaction (Figure 3) (Spitzberg, 1994). As in the individual system, high levels of motivation, knowledge and skills lead to perceptions of communicative competence (Spitzberg, 1994).

The fourth proposition states that as a communicator's communicative status (i.e. positive characteristics) increases, the conversational partner's perception of the communicator's competence increases (Spitzberg, 1994). When judging an communicator's competence, conversational partners are tasked to determine how much of the communicator's conversational performance is due to their own intentional effort and ability in overcoming contextual obstructions, rather than their communicative status in the interaction (Spitzberg, 1994). For example, a high status physically attractive communicator's interactional competence would be disregarded and attributed to their attractiveness, while an unattractive communicator would be perceived as competent due to overcoming contextual barriers to achieve competence (Spitzberg, 1994). Communicators with high social status or

communicators who occupy roles that are associated with achieving consistently positive interactional outcomes, are more likely to be perceived as competent communicators (Spitzberg, 1994). Lastly, communicators who have established successful relationships with the conversational partner, enter encounters with pre-existing perceptions of communicative competence (Spitzberg, 1994).

The fifth proposition states that impressions of the communicator's competence are a function of the communicator's performance of the conversational partner's expectancies (Spitzberg, 1994). Expectancies about "how personal interaction is likely to occur, and should occur, in particular contexts" are developed through exposure to interpersonal interactions (Spitzberg, 1994, p. 387). Competence judgements are influenced by the violation or adherence to conversational partner's expectancies, the degree of fit to conversational partner's "Prototype Expectancies" and expectancies related to the ability of communicator's actors to compensate for positive/negative effect and power relations within interactions (Figure 3) (Spitzberg, 1994). Additionally, unrealistic conversational partner's communicative expectations may lead to perceptions of communicative incompetence. (Spitzberg, 1994).

The *relational system* comprises components that enable perceptions of competence across numerous relationships and across the entire span of a relationship, rather than a single interaction episode (Spitzberg, 1994). Competence within relationships is more than the sum of competences within individual episodes of interaction (Spitzberg, 1994). The relational system reflects a shift from communicative competence to relational competence, which is defined as "the level of communicative quality in an established relationship, indexed by mutual adaptation and relationship satisfaction" (Spitzberg, 1994, p. 389). Propositions six to ten are represented in Figure 4, which summarises the influence of relational components on relational competence.

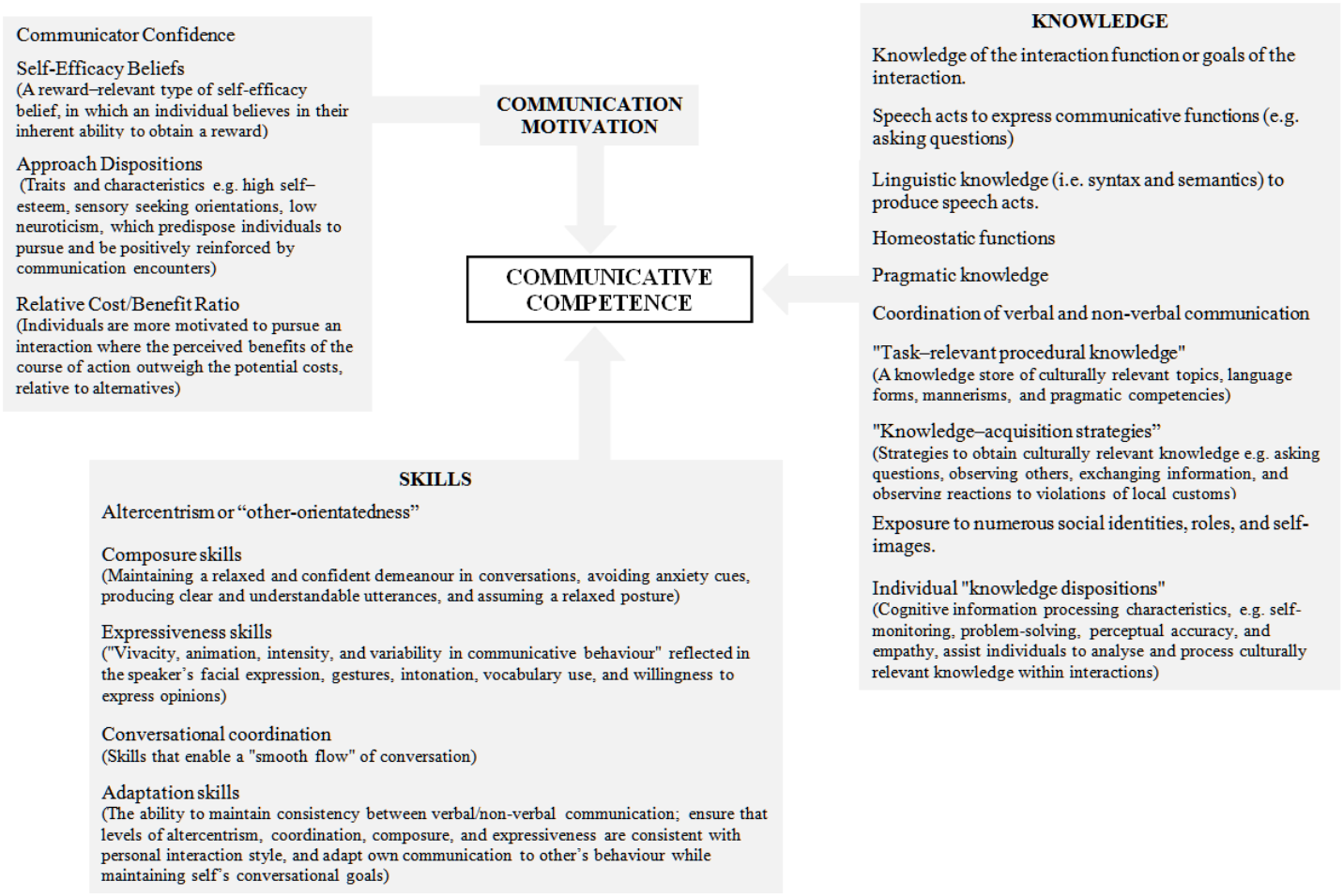

Figure 2. The Individual System (Spitzberg, 1994).

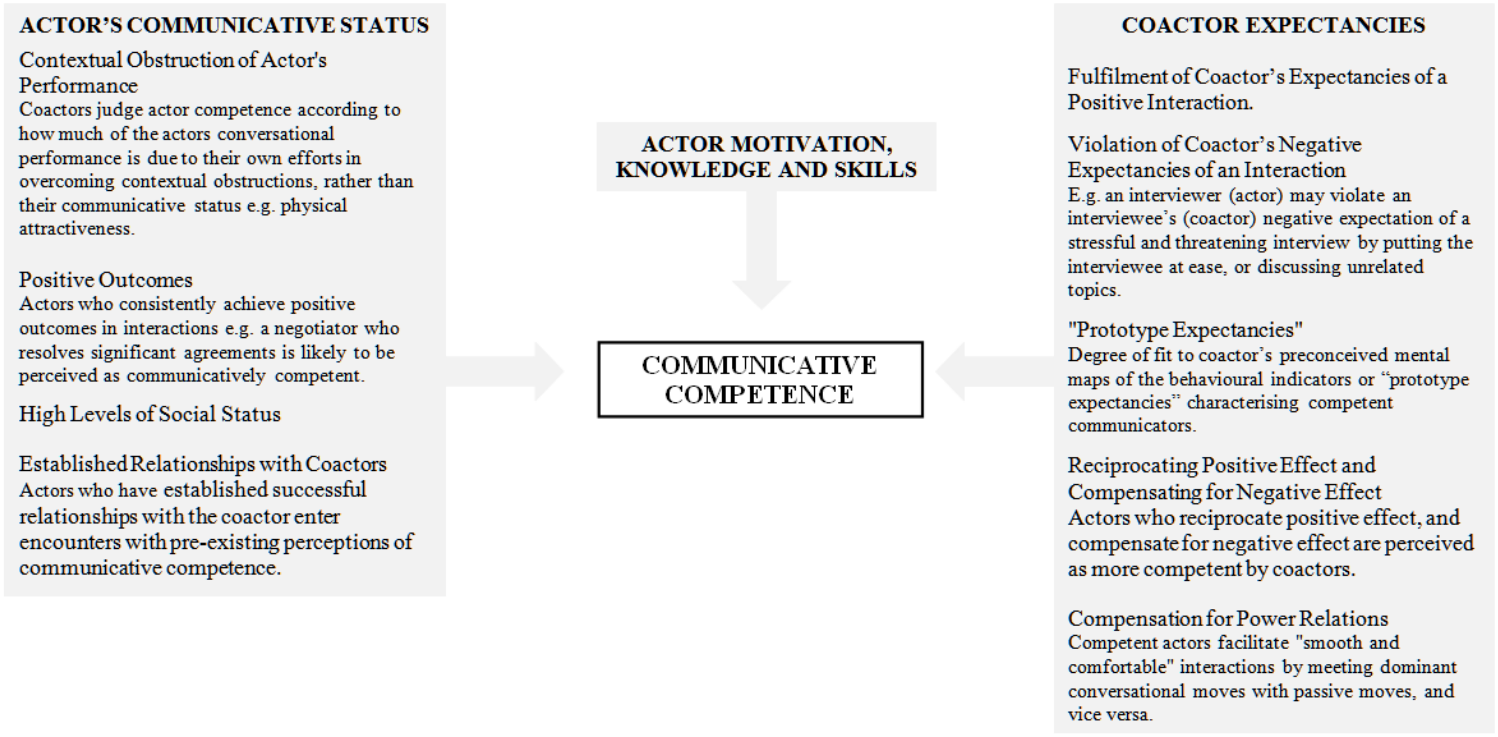

Figure 3. The Episodic System (Spitzberg, 1994).

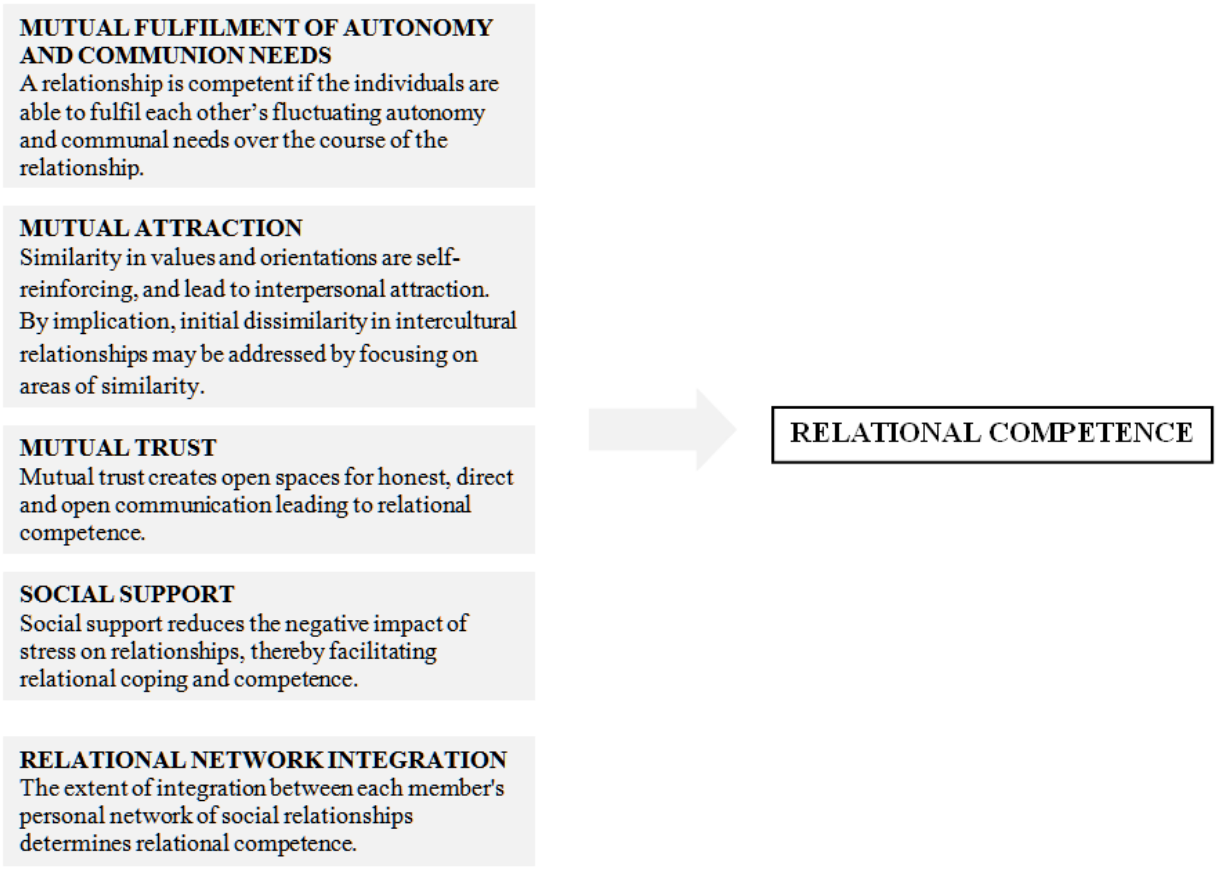

Figure 4. The Relational System (Spitzberg, 1994).

3. WORKPLACE COMMUNICATION COMPETENCE SKILLS: CONCEPTUALISATION AND FOUNDATIONAL ASSUMPTIONS

This literature review has systematically developed a novel broad conceptualisation of the construct, "Workplace Communication Competence", relevant to the SA workplace (as highlighted within the literature review), by drawing on two large bodies of communication and communication competence research and theory, across disciplines, theoretical orientations, and communication models.

In Section A, the conceptualisation of "Workplace Communication" was developed from traditional theoretical frameworks of organisational communication, definitional perspectives of interpersonal communication, focusing on Burleson's (2010) Message-Centred Interpersonal Approach, and, Sptizberg's (2003, 2008) Conceptualisation of Interpersonal Communication Skills. Thus, in the current research Workplace Communication Skills are defined as: **Observable (behavioural, verbal), functional, molecular level, task/work-related communication skills, embedded within social interaction.**

However, the mere ability to enact verbal behavioural skills in organisational and social interactional contexts is considered fundamental, and what is of interest is the quality or competence-judgements of the appropriateness and effectiveness of the performed communication skills. In order to incorporate

communicative competence into the newly developed alternative conceptualisation of workplace communication skills this literature review (Section B) has drawn on three distinct bodies of communicative competence research and theory, each conceptualising communicative competence from a different perspective. The narrow focus on competence in terms of types of inherent knowledge and skills (e.g. linguistic knowledge) in the Communication Competence Models, was augmented by core dimensions of communicative competence in Organisational Communicative Competence conceptualisations (e.g. goal-directed behaviours, motivation, as well as, the knowledge and skills). The disregard for a relation focus on communicative competence in organisational conceptualisations prompted a review of Relational Models of Communicative Competence. Together with the alternative conceptualisation of workplace communication skills, three salient theoretical assumptions: (1) the inclusion of all dimensions of competence, (2) the subjective assessment of communicative competence, and (3) the incorporation of intercultural communicative competence, relevant to SA workplace communication competence (e.g. the subjective contextual judgement of competence accommodates the SA multicultural, multilingual context) were distilled. The Motivation, Knowledge, and Skills Model of competence (Spitzberg & Cupach, 1984) and The Model of Intercultural Competence (Spitzberg, 1994) addressed these theoretical requirements. Thus, in the current research Workplace Communication Competence is defined as: **The subjective assessment of observable (behavioural, verbal), functional, molecular level, task/work-related communication skills, embedded within social interaction, on a continuum of communicative competence.**

This conceptualisation of Workplace Communication Competence was elaborated on in a set of seven foundational assumptions to guide scale development, as follows.

- Workplace communication skills should be directly observable behaviours (Burleson, 2010; Keyton, et al., 2013). This criterion adheres to Spitzberg's (1983) proposition that workplace communication skills are directly observable manifestations of the cognitive and trait dimensions of communication, knowledge and motivation. Additionally the assumption that competency is "an evaluative judgement of the quality of a skill" presupposes that skill to be observable, judgeable and behavioural (Spitzberg, 2003, p. 97).
- Workplace communication skills should be goal-directed or functional. In line with Spitzberg (1983, 2003) for behaviour to be considered a skill it must be performed intentionally and deliberately, in an attempt to accomplish a goal.
- Workplace communication skills should be the smallest unit of communication to complete work tasks. Tasks are thus thought of in terms of the fundamental communication processes, analogous to the underlying steps, which must be performed to accomplish a task. This assumption is in accordance with Keyton et al.'s (2013, p. 153) proposition of "communication as work" i.e. communicative tasks not only contribute to the accomplishment of work tasks, but may be listed

as communicative job tasks within job descriptions, "When communication skill is enacted at work, it then becomes a work task or activity."

- Workplace communication skills are embedded within social interaction. In accordance with Spitzberg (1983, 2003) and Burleson's (2010) "communication" and "social interaction" should be taken as interchangeable.
- Workplace communicative competence is contextually and subjectively assessed. Who gets to say if communication is appropriate, or by what standards is a behaviour judged as appropriate? (Wilson & Sabee, 2003). Judgements of appropriateness are bound by the multifaceted concept of context. This can be understood in terms of culture (sets of behaviours, beliefs, values and linguistic patterns) pertinent in the South African multicultural context, time (sequence of skills e.g. answers follow questions, and the assessment timeframe), relationship (e.g. instrumental superior-subordinate, or colleague relationships), situation (e.g. formal-informal situations), and function (skills valued for one function may not be valued in pursuing another function) (Spitzberg, 2003).
- The subjective evaluation of the level of communicative competency required in jobs, should be assessed on a continuum of communicative competency. Competence is composed of motivation, knowledge, and skills, and thus a communicator lacking in one or more of the three components of competence cannot be dichotomously categorised as incompetent vs. competent (Morreale, 2009; Spitzberg, 1983).
- Workplace communication skills should be verbal. These verbal workplace communication skills are further conceptualised according to second-order well-established broad domains of verbal language: Receptive, Expressive, Motor speech and Pragmatic language, which are widely/universally represented across existing Linguistic and Speech-Language Pathology literature (i.e. existing assessment measures, including the SOFCD scale, and intervention programmes). First-order verbal workplace communication skills were inductively conceptualised (as defined in Table 4) according to previous literature, and included: Information Exchange, Discussing, Explaining/Describing, Instructing, Leading, Persuading/Influencing, Formal Presentation, Expressing Negative Emotion, Verifying and Feedback, Expressing Opinions, Questions/ Interviews, Interpersonal Relationships (communication establishing/maintaining constructive cooperative working relationships), Conflict Resolution/Negotiation, Helping (communication requesting/offering/providing various forms of assistance/care), Teaching, Listening, Comprehension, Interpreting, General Pragmatics including Phatic Utterances, Social Composure, Empathetic Communication Skills, Altercentrism, and Appropriate Self-Disclosure, and, Conversational Repair. Non-verbal actions e.g. gestures, eye contact, were not assessed due to: difficulty in recalling non-verbal actions, a lack of consensus in gestural typologies and the

interpretive non/semantic content, as well as individual differences in non-verbal actions (Krauss, Chen, & Chawla, 2016).

Table 4. Definitions of Second-order and First-order Conceptualisations of Workplace Communication

Domains	**Definitions**
Expressive Language (the ability to produce spoken language (Penn et al., 1998))	
Information Exchange	An expressive transactional flow (requesting /conveying) of routine/complex work-related information through conduits to sources internal and external to the organisation (Jablin & Putnam, 2001; Monge & Millar, 1988, Wigand, 1988).
Discussing	Initiating and participating in formal/ informal work-related dialogues with individuals/teams internal to the organisation.
Explaining/Describing	Offering complex/simple explanations to organisational members and external sources, including describing a problem, giving examples, and translating.
Instructing	Giving and responding to routine/complex instructions from/to colleagues/subordinates.
Leading/ Leadership skills	Guiding/motivating organisational members, or chairing meetings.
Persuading/Influencing	Influencing/convincing others (colleagues/management) or arguing for a particular point of view/opinion, including making a sales pitch.
Formal Presentation	Delivering formal presentations on particular work-related content to small/large organisational groups, including introducing someone at an event.
Expressing negative emotion/ Reporting bad news	Communicating negative content (e.g. bad news/crisis/problems/complaints) or raising doubts, and expressing negative emotions (e.g. frustration).
Verifying and Feedback	Requesting/providing feedback/confirmation/approval.
Opinions	Requesting opinions, and, expressing or promoting, and exchanging opinions with organisational members and clients.
Questions/ Interviews	Asking and answering direct/indirect questions of/from organisational members for specific information and purposes (e.g. selection and recruitment).
Interpersonal Relationships	Establishing/maintaining constructive cooperative working relationships with organisational members and customers/clients, including building trust, using humour, and networking.
Conflict resolution/Negotiation	Negotiating and resolving conflict/complaints with supervisors and customers/clients.
Helping	Requesting/offering/providing various forms of assistance/care and specialist advice to organisational teams and individual members, including customers/clients.
Teaching	Coaching/mentoring/ instructing others.
Receptive Language (the ability to comprend language (Penn et al., 1998))	
Listening	Listening attentiveness and responsiveness.
Comprehension	Understanding/interpreting familiar/novel, long/short, complex/simple work-related messages, and shifts in register and style (colloquial speech and slang).
Interpreting	Understanding higher order language (e.g. conversational inferences, ambiguity, abstract and figurative language) and

	inferring emotional state.
Pragmatics (the ability to use langauge in a social way, appropriate to a particular context (Penn et al., 1998))	
General Pragmatics	Organisational items reviewed included: – Informal small talk with organisational members and clients/customers which is socially perceptive/sensitive to others' feelings, with utterances appropriate to context/time/different cultures. – Phatic utterances: Routine linguistic utterances in conversational exchanges with low informative, interest and relevance, which foster solidarity and well-being between interlocutors (Coupland, Coupland, & Robinson, 1992). – Social composure (i.e. the ability of a communicator to remain calm and relaxed, with little communication anxiety in social situations (Duran, 1983)) and confidence. – Empathetic Communication Skills (e.g. validating and acknowledging conversational partners) – Altercentrism: The ability to show an interest in, concern for, and attention towards conversational partners (e.g. asking questions, complimenting) (Spitzberg & Dillard, 2009). – Appropriate self disclosure: Sharing an appropriate amount of personal information with conversational partners (Greene, Derlega, & Mathews, 2006).
Conversational repair	A set of behaviours which attempt to repair conversational breakdown (e.g. inadequate information provided, poor message planning or misunderstanding due to external environmental factors, for example noise) (Adams, 2002).
Motor Speech	The positioning of speech musculature and the sequencing of muscle movements to produce verbal articulation clarity, fluency and paralinguistic features e.g. using prosody for emphasis (Halpern & Goldfarb, 2013).

4. ASSESSMENT MEASURES

Key Assumptions in Assessing Competence in Workplace Communication Skills

According to Spitzberg (1982) the assessment criteria for assessment measures in a given project depends significantly on how the researcher answers the following key questions:

"Which level of abstraction will be assessed?" The current research assesses verbal workplace communicative competence skills at the level of molecular skills (e.g. asking questions). This is considered appropriate to the conceptualisation of communication as work, rather than at higher levels of abstraction, i.e. intermediate level skills (e.g. expressiveness), higher-order functional skills (e.g. empathy), and higher-order functions (i.e. moving toward/with another, moving against/away from another) (Spitzberg, 2003).

"Why are employees being assessed, and what uses can be made of the assessment?" The purpose of the current research was to establish an ecologically and representationally assessment scale of verbal

workplace communicative competence skills across jobs. The relevance of a descriptive model of workplace communication skills across SA jobs lies in its utility in facilitating the establishment of organisational-appropriate criterion referenced norms for specific jobs, leading to customised job-specific communication assessment tools and focused interventions (i.e. in selection and recruitment, job profiling, performance evaluation, and the development of skill orientated training, development, and coaching) (Keyton et al., 2013).

Furthermore, in the field of Speech Language Pathology, a reliable profile of the communication requirements of specific jobs could assist in the focusing the vocational rehabilitation of mild neurogenic communicatively disordered patients to facilitate return-to-work. Similarly, a scale of workplace communicative competence skills required across SA workplaces could inform Speech Language Pathology intervention aims (Penn, Jones, Schmaman, Watt, & Fridjhon, 1998; Meulenbroek, Bowers, & Turkstra, 2016).

Thirdly, as previously discussed, as competence is highly contextually assessed, the assessment scale should accommodate features of South African organisations relevant to the display of competence e.g. multilingualism and multiculturalism.

Finally, as competence is intrinsic to the vantage point, the current research regards self-report other-referent an appropriate source for competence assessment i.e. an assessment of communication competence skills *required* within participants' jobs.

Existing Measures of Workplace Communication Skills and Workplace Communication Competence

The following section reviews existing measures of workplace communication and communication competence skills to assess the availability of an adequate measure operationalising the construct as "the subjective assessment of observable (behavioural, verbal), functional, molecular level, task/work-related communication skills, embedded within social interaction, on a continuum of communicative competence" within the organisational context. Existing measures of communicative competence in workplace communication skills have been classified according to three types: (1) Organisational communication questionnaires, (2) Interpersonal/Relational communication assessments, and (3) A Speech Pathology workplace communication scale.

(1) *Organisational Communication Instruments*

Organisational communication instruments are classified into Process, and, Comprehensive instruments, and both measure constructs unrelated to individual level, behavioural (observable, verbal), task-related, functional communication skills. Process instruments focus on facets of organisational communication (e.g. conflict management, and team building), with an emphasis on superior-subordinate communication links (Clampitt, 2009). For example, the Management Communication Style Scale (Richmond & McCroskey, 1979) measures communication style, and the

Management Practices Questionnaire (Miller & Zenger, 1978, as cited in Morrison, McCall, & De Vries, 1978) measures leadership communication skills (Salleh, 2008; Calmpitt, 2009). Comprehensive instruments measure macro-level communication practices in organisations e.g. communication climate, unrelated to the individual-level molecular communication construct of interest in the current research. For example, The International Communication Association Audit Survey measures the organisation's communication system in terms of employee ratings of differences between the amount of information received versus the desired/expected amount (Goldhaber & Rogers, 1979; Downs, 1988).

The Communicator Competence Questionnaire (CCQ) (Monge et al., 1982)

The Communicator Competence Questionnaire (CCQ) measures performance-based goal-directed behaviour, necessary to accomplish work tasks, with an organisational context. The CCQ is used assess convergent validity with the newly developed scale, in the current study. The CCQ is other-orientated and assesses two-dimensions of competence considered appropriate for the workplace, Encoding, and Decoding. Seven encoding items focus on the facilitation of understanding in expressive language i.e. expressive clarity, a good command of language, and being easy to understand (Monge et al., 1982). Decoding ability is assessed in five items which focused on receptive skills e.g. listening, attentiveness, and responding quickly to messages (Monge et al., 1982). A high degree of internal consistency for encoding and decoding has been reported in previous research. As a stand-alone measure, the CCQ has been criticised for neglecting relational forms of communication, fundamental to workplace communication, by considering organisational communication relationships as "non-interpersonal" (Monge et al., 1982, p. 507; Payne, 2005). Additionally, contextual "appropriateness", a dimension of communicative competence, is considered "reduced in organisational settings" and limited to a single item (Monge et al., 1982, p. 506).

(2) *Interpersonal Communication Assessments*

Measures of Interpersonal Communication Competence

A review of frequently cited, omnibus-measures of interpersonal communication competence (self- and other-referent) demonstrated an explicit conceptual focus on multiple priori components of competent interaction. The applicability of these instruments to the measurement of workplace communication skill competence lies in their ability to measure interpersonal/relational/social communication competence in the organisational context. However, as a stand-alone measure of workplace communication skill competence, they do not assess task-related, functional workplace communication skill dimensions, within the broader social and interpersonal hallmarks of competent communication. Examples of interpersonal communication competence measures include The Communicative Adaptability Scale (Duran & Kelly, 1985) which measures: social composure, social

confirmation, social experience, appropriate disclosure, articulation, and wit, as further explained under Adaptability Models in this literature review (Spitzberg, 2003). The Conversational Skills Rating Scale (Spitzberg, 1994) includes self-referent/other-referent, and context-general/context-specific aspects, and measures broad molar competence (e.g. skilled-unskilled), and individual level skills (e.g. altercentrism, composure, expressiveness, and interaction management) (Spitzberg, 2003).

Relational Measure of Workplace Communication Competence

Keyton et al. (2013)'s Communication at Work Efficacy (CWE) scale shares many common conceptualisations of workplace communication skills with the underlying framework of the current research. The questionnaire assesses the following four categories (with internal consistency reliably): Information sharing: seeking information and answering questions, Relational Maintenance: creating small talk and joking, Expressing Negative Emotion: expressing frustration and complaining, and, Organising: scheduling and managing others. However, there are concerns regarding the factor and dimensionality structure of the measure, for example, unexplained variance (the four factor solution accounts for only 54.71% of the variance), and the unidimensionality of the model (the majority of the items load onto factor 1 'information sharing"). Additionally, item 40 "showing respect" incongruously loads onto "information sharing", and 10 items were excluded due to low or cross-loading. The CWE scale has not been validated in previous research.

Relational Competence Scale (Cupach & Spitzberg, 1981)

The Relational Competence Scale is an existing measure of interpersonal communication competence, developed by the original authors of the Relational Component Model, Cupach and Spitzberg (1981). It includes a Self-rated Competence subscale (SRC), and a Rating of Alter Competence (RAC) sub-scale. The Self-rated Competence subscale (SRC), used in the current study to assess convergent validity with the newly developed scale, is a 25 item self-perception measure of communicative competence, situated within an interpersonal conversation (Spitzberg, 1982). The Rating of Alter Competence (RAC) is a 24 item instrument measuring rater's perceptions of an altar's competence in a conversation. The SRC has good internal consistency in prior research [(α = .92) (Spitzberg, 1982); (α = .87) (Keyton et al., 2013)], and is highly context bound.

(3) *Speech Language Pathology Scale: The Scale of Occupation Functional Communication Demands (SOFCD) (Penn et al., 1998)*

The Scale of Occupation Functional Communication Demands (SOFCD) was developed within the Speech Language Pathology discipline, to offer a description of the communicative requirements of various occupations, for the purpose of supporting the communicative vocational rehabilitation of clients with a mild neurogenic communication disorder (Penn et al., 1998). The item pool was principally derived from the Communicative Analysis for Employment (CAFE) (Toffolo & Minns, 1993). The items were piloted for completeness on seven jobs via observation and interview. To

establish the reliability of the scale, adequate inter-rater reliabilities from the observation of 27 distinct jobs, drawn from two Johannesburg organisations, the Phillips Factory, and the Rand Water Board, were achieved in the following subscales. Hearing (κ = 0.4 - 0.6), motor speech (κ = 0.57 - 0.7), reception (κ = 0.54 - 0.7), expression (κ = 0.68 - 0.8), reading (κ = 0.66 - 0.76), writing (κ = 0.82 - 0.88), verbal reasoning (κ = 0.36 - 0.5), and pragmatics (κ = 0.68 - 0.8) (Penn et al., 1998). The SOFCD job profiles of successful and unsuccessful return-to-work post brain injury participants have been validated in four case studies which measured the SOFCD results relative to their functional communication assessment results (American Speech Language Hearing Association Functional Assessment of Communication Skills for Adults, ASHA FACS). The scale assesses communicative behaviour according to 8 parameters: hearing, motor speech, reception, expression, reading, writing, verbal reasoning, and pragmatics, on a five point Likert competency scale, low, routine, average, high, and intrinsic (Penn et al., 1998).

Conclusion

This Literature Review has developed a precise, detailed and contextually appropriate conception of the target construct, Workplace Communication Competence, and its theoretical context, from research and theory across disciplines, theoretical orientations, and communication models.

In Section A, a novel conceptualisation of "Workplace Communication Skills" was developed which drew largely on the most appropriate aspects of Burleson's (2010) Message-centred approach and Spitzberg's (2008) Interpersonal Communication Skills framework. Thus, Workplace Communication Skills were defined as "Observable (behavioural, verbal), functional, molecular level, task/work-related communication skills, embedded within social interaction."

Section B drew on Communication Competence Models, Organisational Communicative Competence conceptualisations, and Relational Models of Communicative Competence, to distil context appropriate conceptualisations of communication competence (i.e. competence-judgements of the appropriateness and effectiveness of the performed communication skills) to integrate into the newly developed definition of workplace communication skills. Two models of communication competence, congruent with the research's conceptualisations, The Motivation, Knowledge, and Skills Model of competence (Spitzberg & Cupach, 1984) and The Model of Intercultural Competence (Spitzberg, 1994) were reviewed. The final of conceptualisation of Workplace Communication Competence: "The subjective assessment of observable (behavioural, verbal), functional, molecular level, task/work-related communication skills, embedded within social interaction, on a continuum of communicative competence" was defined. Finally, a detailed set of foundational workplace communicative competence assumptions were developed to guide scale development.

Based on the measures of communicative competence, reviewed across disciplines, no individual instrument adequately measures Workplace Communication Competence within South African organisations. However, existing research, the SOFCD (Penn et al., 1998), offered an exemplar of a scale measuring functional, molecular-level, task/work-related communication skills, pertinent to competency, within the South African organisational context, and formed a starting point for this research.

The development of the new SOFCD scale, offering a theoretical and empirical improvement over existing measures, became pertinent within this research. With scale development in mind, the following section of the literature review outlines the research questions.

Research Questions

Phase 1: Development of the new SOFCD (Item Frequency Reduction)

Research Question 1: What are the most frequently occurring verbal-workplace-communication skills in the South African organisational context?

Phase 2: Factor Structure, Reliability, and Construct Validity of the new SOFCD

Research Question 2: What is the underlying factor structure of the new SOFCD verbal-workplace communication skill items?

Research Question 3: Does the new SOFCD capture aspects of verbal-workplace communication skills which differ from related measures of workplace communicative and relational competence.

CHAPTER 3

METHOD

INTRODUCTION

The overall purpose of the study was to develop a valid and reliable measure of workplace communicative competence. This chapter describes the methodology used to develop the scale within two phases. Phase 1: Preliminary Scale Development involved, firstly, Item Sampling, and secondly, a Pilot Study: item reduction by frequency and further item reduction and rewording, thus addressing *Research Question 1:* What are the most frequently occurring verbal-workplace-communication skills in the South African organisational context. Phase 2: Final Scale Administration, addressed *Research Question 2:* What is the underlying factor structure of the new SOFCD verbal-workplace communication skill items. In Phase 2 competing factor structures were evaluated according to EFA model fit indices, pre and post item deletion, followed by confirmatory factor analysis (CFA) to differentiate superior model fit. Lastly, the psychometric properties of the SOFCD, in terms of convergent and divergent validity, and reliability were evaluated, thus addressing *Research Question 3:* Does the new SOFCD capture aspects of verbal-workplace communication skills which differ from related measures of workplace communicative and relational competence.

RESEARCH DESIGN

This study included both qualitative and quantitative methodology. Phase 1 used qualitative methods in generating an item pool with adequate item representation in the 25 first-order conceptualisations of verbal workplace communication (e.g. developing reciprocal counterparts of existing items, reducing redundancies in semantically identical/synonymous items). Phase 2 took the form of a quantitative, cross-sectional, factor analytic, non-experimental research design.

PHASE 1: PRELIMINARY SCALE DEVELOPMENT

ITEM SAMPLING

The generation of a broad, comprehensive, inclusive item pool was generated according to sound methodological strengths across previous scale development research, resulting in a hierarchical multi-step process (Loevinger, 1957; Morgenson & Humphrey, 2006).

Item generation

Content conforming to the foundational assumptions (Table 5), and definition of workplace communication skills: The subjective assessment of observable (behavioural, verbal), functional, molecular level, task/work-related communication skills, embedded within social interaction, on a

continuum of communicative competence, as expanded in the literature review), was systematically sampled.

Table 5. Seven Foundational Assumptions of Workplace Communication Skills

(1) Directly observable behaviours (Keyton, et al., 2013).
(2) Goal-directed or functional (Spitzberg, 1983, 2003).
(3) The smallest unit of communication to complete work tasks (Keyton et al., 2013).
(4) Embedded within social interaction (Spitzberg, 1983, 2003).
(5) Workplace communicative competence is contextually and subjectively assessed (Wilson & Sabee, 2003).
(6) Workplace communicative competency required in jobs, should be assessed on a continuum of communicative competency (Morreale, 2009; Spitzberg, 1983).
(7) Workplace communication skills should be verbal , and fall within the first and second order workplace communication behaviour conceptualisations (i.e non-verbal and literacy are not assessed).

The following three sources were reviewed for exisitng communication items: existing workplace communication instruments, descriptors of workplace communication skills in previous research and literature, and occupational communication skill inventories. The content and wording of the sourced items was preserved. Workplace communication instruments reviewed included: The SOFCD (Penn et al., 1998); The Workplace Communication Behaviour Inventory (Keyton, et al., 2013); Oral Communication Self-Assessment (Human resources and skills development Canada, 2013); Interpersonal Communication Competence Scale (Rubin & Martin, 1994); Communicative Adaptability Scale (Duran, 1992); COMPASS English as a Second Language (ESL) placement tests (ACT, 2007) and ESL functioning level descriptors (Centre for adult English language acquisition (CAELA), n.d). The following databases were reviewed for verbal workplace communication journal articles by searching for key words related to workplace communication competence skills/behaviours: PsycINFO, EBSCO Host (Academic Search Complete), JSTOR, PsycARTICLES, SAGE Premier Online, SCOPUS, and Taylor & Francis. Journal articles reviewing occupational-specific communication skills included: Di Salvo, Larsen, and Seiler (1976); Freihat and Al-Machzoomi (2012); Moslehifar and Ibrahim (2012); Brown, Bylund, Lubrano Di Ciccone, and Kissane (2010); Ortiz, Region-Sebest, and MacDermott (2016); Gray (2010); Crosling and Ward (2002); Stevens (2005); Warner (1995); Christensen and Rees (2002); Maes, Weldy, and Icenogle (1997); Shockley-Zalabak, Staley, and Morley (1988); Conrad and Newberry (2011); Wardrope (2002); Brownell (1985, 1986); and Grognet (1997). The Occupational Information Network (O*NET) (Peterson, Mumford, Borman, Jeanneret, & Fleishman, 2010) was systematically reviewed across occupations for occupational communication skill ratings most directly related to the defined construct. Thus, content across a range of different disciplines and theoretical orientations including Speech Language Pathology, Linguistics, Industrial/Organisation Psychology: Workplace communication, and Relational communication, was sampled.

Guided by the first and second order verbal workplace communication skill conceptualisations (Table 4) the resulting item pool was firstly, classified into the four broad second-order domains of verbal

language: Receptive, Expressive, Motor speech and Pragmatic language. Secondly, second order items were further classified into the 25 first order subcategory conceptualisations. Adequate item representation of the first and second order verbal workplace communication skill categories was ensured by supplementing under-represented categories with “new” items drawn from a broader review of additional sources, and reciprocal counterparts of existing items were developed (e.g. "Giving clear instructions" and "Responding verbally to instructions") (Morgenson & Humphrey, 2006). In an attempt to minimize construct contamination, first-order subcategory items were re-checked for inter-category distinctiveness, and intra-category commonality according to the first order conceptual definitions (Morgenson & Humphrey, 2006). Semantically identical and synonymous item redundancies were deleted, and, semantically identical pools of items were reduced by selecting item/s best reflective of the first order subcategory conceptualisation (Morgenson & Humphrey, 2006). The item complexity was limited to one characteristic of verbal communication per item to avoid ambiguity, and items containing value judgements were excluded. The qualitative sort resulted in 139-items as further expanded in Chapter 4: Results.

PILOT STUDY

The Pilot Study aimed to narrow the initial 139 item pool, identified in literature and research, to only those communication skills occurring routinely in SA workplaces, by a frequency analysis. The utility of item reduction by frequency analysis has been demonstrated by Keyton et al. (2013) in previous communication scale development research.

Experimental Measure

The 139-items were prepared for administration, in a pen-and-paper survey, to the sample (see Appendix 1: Questionnaire pack). In response to the following statement: "Thinking of your previous day at work and how others communicated, use the checklist to check off the behaviours you did or did not hear or observe" (Keyton et al., 2013, p. 158), participants were required to indicate the presence or absence of each item in an other-referent dichotomous response format (Clark & Watson, 1995).

Sample

Thirty Wits Plus participants, currently employed on a full-time/part-time basis, were recruited. Wits Plus offers undergraduate and certified course classes, in the faculties of the Humanities and Commerce, on a part-time after-hours basis, to meet the needs of people who are currently employed (Wits Plus, Centre for part-time studies, 2016). A non-probability method of convenience sampling was used to recruit a group of 30 participants from various classes at the Wits Plus Centre, at the University of the Witwatersrand, who were demographically representative of the South African working population, employment sectors and occupational skill-level groups in SA organisations (Standard Classification of Occupations (SASCO), 2002). A similar sampling strategy, in Morgenson and Humphrey (2006),

achieved an adequate representation of different jobs across the sample. Johanson and Brooks (2010, p. 400) propose that, "30 representative participants from the population of interest is a reasonable minimum recommendation for a pilot study where the purpose is preliminary survey or scale development."

Questionnaire Pack

Questionnaire packs (see Appendix 1) contained (a) An informed consent form containing written information detailing the research project, (b) An occupational demographic information questionnaire (age, tenure, job title, gender, race, work arrangement i.e. full-time/part-time, level of education, and language), and (c) The 139-item experimental questionnaire.

Data Collection Procedure

According to Clark and Watson (1995) it is good practice to administer the preliminary item pool, in the initial round of data collection. The following standard protocol steps were carried out in June - August 2016.

Ethical clearance was obtained from the Human Research Ethics Committee (School of Human and Community Development).Protocol number: MORG/16/008 IH (Appendix 2). Approval to recruit participants from the Wits Plus Centre was obtained from the director, Dr Johan Swanepoel, via email on the 15th July 2016, after outlining the purpose and procedures of the study, participation requirements (to complete a short survey during the lecture break), selection criteria, and ethical considerations concerning participation. Prior to administration of the Questionnaire pack, permission was obtained from the relevant Wits Plus lecturer, the purpose and procedures of the study were outlined to potential participants, and any questions were addressed by the researcher. Questionnaire packs were made available to currently employed Wits Plus students who wished to participate, and were collected during the lecture break and after the lecture. Signed consent forms were collected separately from the Questionnaire pack to maintain participant anonymity.

Data Analytical Procedures

Using SPSS statistical software (Version 23, SPSS, Inc., Armonk, New York) the following statistical procedures were under taken on the captured data to answer *Research Question 1:* What are the most frequently occurring verbal-workplace-communication skills in the South African organisational context. The following descriptive statistics were computed for the demographic variables: mean, standard deviation, and minimum/maximum values for participant age and tenure in years. The percentage representation and number (n) was reported for race, work arrangement, level of education, gender, occupational group (SASCO, 2002), and language.

The frequency and percentage of "present" items within the 139 item pool were computed and tabulated. In line with Keyton et al. (2013), the list of reported verbal workplace communication skills were narrowed to 119 frequently reported skills i.e. items that 50% or more of the participants identify as

having observed at their workplace the previous day. The 119 retained items were further reduced to 69 items by collapsing semantically similar items into a single item reflective of the subcategory construct, and re-evaluating items not conforming to the foundational assumptions, or reflecting value judgements. The syntax and lexicon of some items were slightly re-worded to be straightforward, understandable, and without colloquialisms. All items were positively worded, as negatively worded items have caused factor structure problems in other measures (Morgenson & Humphrey, 2006). Two subject matter experts (SME) were consulted as to the relevancy and appropriateness of the final item reductions and rewording for SA participants.

Bivariate analyses were conducted to assess any potential confounding relationships between the demographic variables and the frequency of the "present" verbal workplace communication skill items. These analyses consisted of Pearson's chi square test of association (phi- coefficient) (Race, Education level, Language, and, "present" response frequency), Point Biserial correlations (Age, Tenure, and, "present" response frequency), and Fisher's Exact significance two sided test (Gender, and Full-time/part-time employment and "present" response frequency) (Field, 2009). This was to establish if routine or frequently used/reported verbal workplace communication skills can be assumed to be typical across work environments (Keyton, et al., 2013).

PHASE 2: FINAL SCALE ADMINISTRATION

Phase 2 addressed *Research Question 2*: What are the structural properties of the new SOFCD verbal-communication-workplace skills items, and *Research Question 3:* Does the new SOFCD capture aspects of verbal-workplace communication skills which differ from related measures of workplace communicative and relational competence.

Experimental Measures

The 69-item SOFCD Scale

The retained 69 items in the experimental measure resulted from Phase 1's frequency reduction analysis and qualitative item reduction. Data collected through the administration of the 69-item SOFCD scale was used to evaluate scale dimensionality, within EFAs and a CFA, as well as establishing reliability, and validity. Participants rated an "other-referent" level of communicative competency required by the job, on a five point Likert scale (excellent = 5, good = 4, fair = 3, poor = 2, not required = 1), in response to an introductory statement: "Based on your own experiences, use the following statements to evaluate the level of communicative competence required in your job." (see Appendix 3: Questionnaire pack). This response format was employed due to its face validity, ease of administration, and successful use as a validity response format in Keyton et al.'s (2013) communication scale development research. Additionally, "other-referent" responses are appropriate in assessing competence, which is intrinsic to the vantage point (Payne, 2005).

The following two measures, the Relational Competence Scale (RCS) (Cupach & Spitzberg, 1981), and the Communicator Competence Questionnaire (CCQ) (Monge et al., 1982) were administered to provide data upon which the convergent and divergent validity of new SOFCD scale could be established.

Relational Competence Scale (RCS) (Cupach & Spitzberg, 1981)

The RCS has been previous described in Chapter 2: Literature review and will be briefly outlined. The RCS is a self/alter-rated competence scale, composed of two subtests, the Self-rated Competence subscale (SRC), and the Rating of Alter Competence (RAC). The Self-rated Competence subscale (SRC), used in the current study, is a 25 item self-perception measure of communicative competence, with an alter competence correlation of r = .60 (Spitzberg, 1982). The following four facts indicate the suitability of the SRC as a measure of relational competence to this research, and in the broader organisational context. It was developed by the original author of the Relational Competence Model, informing this research. The original study (n= 458) reported a coefficient alpha reliability of (α = .92) for the SRC (Cupach & Spitzberg, 1981). The measurement of competence in the SRC is highly context bound, and requires context specific operationalisation, thus indicating its suitability in the organisational context (Spitzberg, 1982). Keyton et al.'s (2013) modified SRC, as used in this study to establish convergent validity, demonstrated good internal consistency reliably (α = .87). The SRC was adapted for the purposes of this study. The items were rephrased to be other-referent, e.g. "I was assertive" was reworded to "To be assertive." In agreement with Keyton et al., (2013), items 5 and 27 were rephrased to reflect an observable behaviour/skill, "I was trustworthy" and "I was sensitive to the needs and feelings of the other person", were reworded to "To gain other's trust", and, "To show sensitivity to the needs and feelings of the other person" respectively. The 5 point Likert response scale was retained, (1 = Strongly Disagree, 2 = Mildly Disagree, 3 = Undecided, 4 = Mildly Agree, 5 = Strongly Agree) (see Appendix 3: Questionnaire pack).

Communicator Competence Questionnaire (CCQ) (Monge et al., 1982)

The CCQ was selected as a convergent validity measure as it demonstrates congruence in the conceptualisation of workplace communication as performance-based goal-directed behaviour/skills necessary to accomplish work tasks. The following four facts indicate its suitability as a measure of workplace communicative competence, in the current study. The measure was developed for the organisational context. Monge et al. (1982) concurs with the underlying conceptualisations of workplace communication as goal-directed behaviour (Spitzberg , 1983) in this study. The CCQ (which is other-orientated) assesses two-dimensions of competence considered appropriate for the workplace, Encoding (seven items), and Decoding (five items). High internal consistency reliability is reported for Encoding and Decoding respectively, in: the original study (α = .87) and (α = .85), (Monge et al., 1982), the development of the Workplace Communication Behaviour Inventory (α = .85) and (α = .84) (Keyton, et al., 2013). The CCQ was adapted for this study as follows. The items were rephrased to be other-referent, e.g. "My subordinate has a good command of the language" was reworded to, "To have a good command of the

language". The non-verbal items 7 and 12 were deleted from the list. The original response scale (YES! *YES* yes ? *NO* NO!) was replaced with a different response format, a 7 point Likert scale (1 = Strongly Disagree, 2 = Mildly Disagree, 3 = Disagree Somewhat, 4 = Undecided, 5 = Agree Somewhat, 6 = Mildly Agree, 7 = Strongly Agree) (see Appendix 3: Questionnaire pack). This response format was chosen as "multiple-choice item response formats are more reliable, give more stable results, and produce better scales" (Camrey, 1988, p. 758). Additionally, the six point scale offered more response alternatives, appropriate to the item content, than the original five point scale (Clark & Watson, 1995).

Sample

A non-probability method of convenience, purposive sampling was used to recruit 326 employees from two sources: The Wits Plus Centre at the University of the Witwatersrand (n=307), and, Social networking websites (n=19). 303 responses were retained for further statistical analysis due to incomplete responses. These sampling strategies improved the generalisability of the scale as the demographic characteristics were reflective of the SA population statistics in terms of race, gender, and language group distribution. All levels of education, non/professional jobs, and occupational skill level groupings across 30 distinct economic sectors were represented within the sample. In terms of sample size, Comrey (1988) proposes that factor analysis requires a minimum of 200-300 respondents, which additionally ensures a good correlation or reliability analysis.

Participant Selection Criteria

– Participants were required to be currently employed in full-time employment, in order to provide current relevant information about the target construct.

– Participants were required to have at least a 2 year tenure in their current job position. This was to ensure that participants had sufficient work experience to accurately judge varying levels of competence required in functional verbal communication skills, at a molecular level, associated with their job tasks/roles.

– Participants were required to have no communication pathologies or uncorrected hearing impairment, as per self report. This was to ensure that judgements of the level of competency in verbal workplace communication skills required for a job, did not reflect judgements of workplace communication deficits, and the competency of compensatory strategies (Meulenbroek, Bowers, & Turkstra, 2016).

Questionnaire Pack

The final scale administration questionnaire packs (see Appendix 3) contained (a) An informed consent form containing written information detailing the research project, (b) An occupational demographic information questionnaire (age, tenure, gender, race, type of organisational sector, job title, work arrangement i.e. full-time/part-time, highest level of education, and first language), (c) The adapted RCS scale, (d) The adapted CCQ scale, and (c) The 69 item SOFCD experimental questionnaire.

Data Collection Procedure

As previously mentioned ethical clearance was obtained from the Human Research Ethics Committee (School of Human and Community Development).Protocol number: MORG/16/008 IH (Appendix 2), and permission was obtained from Dr Johan Swanepoel for the Wits Plus sample.

Wits Plus Sample

Administration of the Questionnaire pack followed the same procedure as in Phase 1.

Social Network Sample

Supplementation of the sample, via Facebook (South Africa), and direct email, was undertaken. Potential participants were contacted via a brief concise posted message or a direct email outlining the "purpose and procedures" of the study and offering a Survey Monkey link. The following adaptations to the questionnaire pack enabled electronic administration via Survey Monkey. Participants were informed that the Internet Protocol (IP) address would be deleted once the data has been extracted. The informed consent form ended with, "By proceeding with this survey you verify that you have read the explanation of the study, and agree to participate. You are currently employed, have been in your current job for a minimum of 2 years, and have no speech problems (like stuttering or aphasia) or an uncorrected hearing loss. You also understand that your participation is strictly voluntary."(see Appendix 4).

Data Analytical Procedures

The data for statistical analysis consisted of participants' competence ratings of the following scales: (1) 69-item SOFCD scale (2) The RCS scale, and (3) The CCQ scale, and a demographic occupational questionnaire.

Data preparation

The following data exclusion criteria were applied. In the 69-item SOFCD Scale responses questionnaires with < 75% of item responses completed, and no substantial response profile item differences between this case and other cases, were excluded from further analysis. Thus, 15 pen-and-paper responses and 8 electronic 69-item SOFCD scale responses were considered incomplete and excluded from further analysis. Due to the high response rate of completed questionnaires, in cases where only 25% of items were completed it was deemed unnecessary to perform case wise comparisons and mean impute missing data. The application of the 75% exclusion criteria for SRC and CCQ equated to omitting ≥ 4 items in each scale, with mean imputation for questionnaires omitting ≤ 3 items. However, only 1.6% of RCS item responses, and 0.26% of CCQ item responses were unanswered, and required mean imputation.

All responses were dummy coded (i.e. numerical codes were assigned to each level of demographic variables, and all Likert scales were coded numerically) (Appendix 5), and entered into Microsoft Excel spreadsheets, prior to SPSS statistical software (Version 23, SPSS, Inc., Armonk, New York) analysis.

Descriptive Statistics

Demographic Variables

The mean, standard deviation, were computed for: Participant age and tenure in years. The percentage representation and number (n) were reported for race, part-time/full-time employment, level of education, gender, occupational group (SASCO, 2002), and language.

Item Distribution Analysis

In order assess the assumption of univariate and multivariate normality required for EFA and CFA respectively, the following item analysis was conducted (Field, 2009). To assess univariate normality, the minimum and maximum, mean and standard deviation, skewness, kurtosis, and Shapiro Wilk test were conducted for each of the 69 SOFCD item responses. The following criteria indicated univariate non-normality: Skewness and kurtosis values exceeding Huck's (2009) +1.00 and -1.00 normality parameter values, significant Shapiro-Wilk values ($\alpha \leq 0.05$) (Field, 2009). Multivariate normality was assessed using Mardia's coefficient of multivariate kurtosis, with a Mardia's coefficient exceeding the cut-off value of 1.96 suggested non-normality (Nimon, 2013). In an attempt to correct the highly negatively skewed and abnormally kurtotic item distributions, as well as overall mulivariate non-normality, reverse scoring followed by Log ($\log(X_i)$) and Square root ($\sqrt{X_i}$) transformations yielded limited improvement in the non-normal item distributions.

Preliminary Analysis

Sample size

In addition to ensuring an adequate sample size (n = 300) for factor analysis, the Kaiser–Meyer–Olkin measure of sampling adequacy (KMO) statistic (Kaiser, 1970) was applied to assess the adequacy of the correlation matrices for factor analysis (Field, 2009). A sample size of at least 300 cases is recommended to ensure that factors with few loadings can be interpreted as reliable i.e. a stable factor solution (Comrey & Lee, 1992; Tabachnick & Fidell, 2014). In terms of the KMO ratio (0 - 1 scale), values close to 1 indicate relatively compact correlations, and distinct and reliable factors, suggesting the appropriateness of the data for factor analysis (Field, 2013). Values below 0.5 indicate the need for further data collection (Kaiser, 1970). Hutcheson and Sofroniou (1999) provide the following guideline for KMO interpretation: excellent: ≥ 0.9, very good: 0.8 to 0.9, good: 0.7 to 0.8, and adequate: 0.5 to 0.7.

Inter-item Correlations

The presence of strongly skewed and kurtotic ordinal, Likert scale data as well as overall multivariate non-normality, necessitated the use of Polychoric inter-item correlations, as a basis for factor analysis. Pearson's correlations when applied to non-normally distributed Likert type data yield misleading results (i.e. false multidimensionality of factors, and underestimated strength of ordinal inter-item correlations) (Bernstein, Garbin, & Teng, 1988; Olsson, 1979). Furthermore, polychoric correlations assume a continuous underlying latent variable which is bivariately normally distributed in the population (Kupek,

2006). This assumption is met in the normal distribution of the continuous underlying latent variable, required-communication- competence, across job sectors in the South African working population.
The polychoric inter-item correlations were examined for firstly, highly correlated items pairs (i.e. $r >$ 0.90 (Field, 2009)) indicating redundancy and multicolinearity, and secondly, weakly correlated items ($r < 0.3$ (Field, 2009;Tabachnick & Fidell, 2007)) suggested insufficient correlations for further factor analysis. Bartlett's test of sphericity, as an objective test of the sufficiency of the inter-item correlations for factorisability, was computed. A significant Bartlett's and Jennrich test result indicated that the overall inter-item correlations were significantly different from 0 (i.e. the identity matrix) (Field, 2013; Jennrich, 1970). Additionally, Steiger's test assessed the significance of the difference between item-scale correlations (Steiger, 1980).

Factor Analysis

The factor analytic (FA) approach was used in the current study to explain the underlying latent structure of the scale items, rather than the alternative principal components analysis (PCA) for the following reasons. FA extracts factors on the basis of shared variance between variables (differentiating shared variance from unique and error variance) (Baglin, 2014; Costello & Osborne, 2005). Principal components analysis (PCA), is primarily a data reduction method, which utilises all of the variance of the manifest variables, without differentiating shared from unique and error variance, thus assuming that each variable is measured without error (Baglin, 2014; Costello & Osborne, 2005; Ford, MacCallum, & Tait, 1986). Unweighted least squares (ULS) (Minimum Residual method) extraction method was selected as it is robust to violations of item normality (Nunnally & Bernstein, 1993). In Phase 2 competing factor structures were evaluated according to EFA model fit indices, pre and post item deletion, followed by confirmatory factor analysis (CFA) to differentiate superior model fit.

1. Exploratory Factor Analysis

Factor Extraction

The number of extractable factors was determined by considering the outcomes of the following traditional measures: Kaiser criterion (retaining eigenvalues > 1) (Kaiser, 1960), Scree test (Cattell, 2010) and its non-graphical solutions, the Acceleration Factor (Raiche, Roipel, & Blais, 2006).
Kaiser's Criterion recommends that all factors with eigenvalues greater than 1.0 should be considered for extraction (Kaiser, 1970). In terms of the scree plot, the factors to the left of the point of inflection will be extracted (Cattell, 2010; Field, 2009).Research reports a number of shortcomings of these traditional extraction methods (as further explained in Chapter 4: Results). Thus, the following modern extraction methods were deemed necessary: Parallel analysis (Horn, 1965; O'Connor, 2000), Optimal Coordinate (Raiche, Roipel, & Blais, 2006), Velicer's minimum average partial (MAP r^2) (Velicer, 1976), and Very simple structure (VSS) (Revelle & Rocklin, 1979). Research recommends that a factor extraction decision

be made on the convergence of the above methods, however, if results are inconclusive it is suggested that the factor extraction decision should be based on extraction methodologies verified across multiple studies (Courtney, 2013). Convergence of modern extraction method results suggested 6, 7, and 8 factor solutions. Two sets of EFAs (pre-deletion and post-deletion of items) were conducted to further investigate these competing models.

Rotation

To investigate the competing models, pre- and post- deletion EFAs used oblique factor rotations. The choice of oblique factor rotation was supported by: the use of an oblique factor rotation in the development of the Workplace Communication Behaviour Inventory (Keyton, et al., 2013), which demonstrated factor relatedness, and the presence of moderate inter-factor correlations in the current study. In determining the most interpretable solution, or "simple solution structure" (i.e. clear primary item factor loadings, with low secondary loadings on other factors (Treiman, 2009)), an orthagonal Varimax rotation was initially applied to the data, followed by various oblique rotations: Oblimin Quartimin-Q, Oblimin Biquartimin-Q, Simplimax-Q, Bentler T-T, Bentler Q-Q, Tandem I-T and Tandem II-T.

1.1. Pre-deletion EFA

Pre-deletion EFA Model Fit

Exploratory factor analysis was conducted on the 6, 7 and 8 factor solutions using Basto and Pereira's (2012) SPSS R-Menu for Ordinal Factor Analysis. The SPSS R-Menu offered the following advantages over the standardised SPSS dialog: the ability compute a polychoric correlation matrix, more rotation options, and the availability of Velicer's MAP and Parallel analysis as modern extraction methods (Basto & Pereira, 2012). The three competing EFA models were evaluated by examining the following model fit indices. (1) Model fit statistics, relative to EFA fit norms: Root mean square residual (RMSR) (good fit: < 0.1, very good fit: < 0.05 (Basto & Pereira, 2012)), Goodness-of-fit Index (GFI) (good fit: > 0.9, very good fit: > 0.95 (Basto & Pereira, 2012)), Root mean square partial correlations (RMSP) (lower RMSP values = superior model fit (Basto & Pereira, 2012)). (2) % Residual correlations (i.e. Percent inter-item residuals > 0.05 out of 2346 unique correlations). (3) Number of item loadings per factor. (4) Pattern of rotated factor loadings (non-loading items with the factor loading of ≤ 0.40, and cross-loading items). (5) The clarity of the theoretical interpretability of the factors, and (6) Accumulative variance explained by the model and the distribution of variance across factors.

1.2. Post-deletion EFA

Removal of Poor Items

Deletion decisions were made primarily on the basis of two item factor loading patterns: (1) non-loading items (items with the factor loadings of ≤ 0.40 across factors), across two/three models, and, (2) cross-loading items with loadings of ≥ 0.4 on more than one factor, present in two/three models. The deletion of non-loading items, and conceptually "incorrect" or unexplainable cross-loading items, with similar primary and secondary loadings, was supported by contributory satistical indices: (a) weak inter-item correlations, (b) relatively low item means, (c) high residual correlations relative to other items, and (d) low item communalities across models (Solis, 2015). Similarly, the deletion/retention of cross-loading items, with similar primary and secondary loadings, was primarily governed by the conceptual explainability of the cross-loading (i.e. if the cross-loading made conceptual sense). The retention of these conceptually valid cross-loading items was supported by statistical justification for retention: (a) strong inter-item correlations, (b) item means above the mid point of the response scale,(c) a high percentage of residual correlations below 0.05 across the models, and (d) communalities greater then 0.5 (Solis, 2015).

Post-deletion EFA Model Fit

A second set of oblique-rotated EFAs were conducted to investigate the factor structure of the 64-item, six, seven and eight factor models. To determine the best factor structure between competing models the following EFA model fit indices were compared (as described under pre-deletion EFA model fit): Model fit statistics (RMSR, GFI, RMSP), % residual correlations, number of item loadings per factor, pattern of rotated factor loadings, theoretical interpretability of the factors, accumulative variance explained by the model, and distribution of variance across factors. Comparisons were drawn across the post-deletion model fit indices of the six, seven and eight factor models, to discern superior model fit. Improvements in post-deletion model fit indices within individual factor models were evaluated.

2. Confirmatory Factor Analysis

The six, seven and eight factor alternative models of the SOFCD were further evaluated using Confirmatory Factor Analysis for ordered categorical data in SPSS AMOS (Version 23, SPSS, Inc., Armonk, New York). The Bollen-Stine statistic overcomes issues of multivariate non-normality to provide a modified bootstrap method for the chi-square goodness-of-fit statistic (Byrne, 2009; Raoprasert & Islam, 2010). A good model fit is indicated by a Bollen-Stine *p* value of greater than 0.001 (Raoprasert & Islam, 2010; Byrne, 2009). In line with Hair, Black, Babin, and Anderson' s (2010) recommendations, the Bollen-Stine bootstrap was performed on 1000 samples.

PHASE 2: PSYCHOMETRIC PROPERTIES OF THE 63-ITEM EIGHT FACTOR NEW SOFCD SCALE

Construct Validity

The validity of an instrument refers to "whether it measures what it was designed to measure" (Field, 2009, p. 11). The current study investigated convergent and divergent validity. "Convergent validity refers to the degree to which a measure is related to other measures that it would theoretically be expected to correlate with" (Wainwright, 2010, p. 86). The construct validity of the new SOFCD was investigated by correlating the SOFCD factors with the factor structures of two related measures, the RCS and CCQ scales, measuring theoretically related constructs. The CCQ scale is a measure of workplace communication competence with two underlying factors: Encoding and Decoding (Monge, et al., 1982), and the RCS measures relational communication skills with the following underlying factors: Other-orientation, Conversational skills, and Self-centered behaviour (Spitzberg, 1988).

Descriptive Statistics and Reliability of the Related Scales: The RCS and CCQ scales

To assess the univariate normality of the RCS and CCQ, at an item level, the minimum and maximum, mean and standard deviation, skewness and kurtosis (+1.00 and -1.00 normality parameter values (Huck, 2009)), and Shapiro Wilk test ($\alpha \leq 0.05$ (Field, 2009)) were conducted for each of the 25 RCS item responses, and the 10 CCQ item responses.

An analysis of the internal consistency reliability of the RCS and CCQ subscales provided information about the consistency of the measurement and the test error. Ordinal coefficient alpha and theta were computed for the subscales of the RCS and CCQ measures as they are reported to provide reliable estimates of internal consistency reliability for ordinal and non-normally distributed data (Zumbo, Gadermann, & Zeisser, 2007). George and Mallery (2003) provide the following ranges of alpha, excellent: $\alpha \geq 0.9$; good: $0.7 \leq \alpha < 0.9$; acceptable: $0.6 \leq \alpha < 0.7$; poor: $0.5 \leq \alpha < 0.6$; unacceptable: $\alpha < 0.5$.

Inter-factor Correlations

Due to negatively skewed and abnormal kurtotic item distributions , as well as a significant Shapiro-Wilk test , boot-strapped inter-factor correlations between the RCS and CCQ, and SOFCD factors were calculated to provide evidence of convergent and discriminant validity. The percentage of conceptual overlap or shared variance between the SOFCD factors and the RCS and CCQ factors was calculated. Low and non-significant correlations between the RCS, CCQ and SOFCD factors provided evidence of discriminant validity. The strength and significance of the SOFCD interfactor correlations was examined as further evidence of discriminant validity.

Internal Consistency Reliability

Internal consistency reliability of the 63-item SOFCD scale was assessed using ordinal coefficient alpha and theta for the overall SOFCD, and each sub-scale. Zumbo et al. (2007) recommend using ordinal coefficient alpha and theta as accurate estimations of internal consistency reliability for skewed ordinal data irrespective of the number of Likert response categories. Although the ordinal coefficient alpha and theta were developed for factor analysis and principal component analysis respectively, the variability of these estimates was used to verify the accuracy of these coefficients in the face of non-normal data in this research. The "Ordinal coefficient alpha/theta if item deleted" table (the contribution of individual items to internal consistency reliability) was reviewed to assess enhancement in internal consistency reliability by deleting items. However, overruling consideration will be given to the construct validity of the scale when considering items for deletion (Clark & Watson, 1995).

ETHICAL CONSIDERATIONS

In adhering to the ethical principles of beneficence and non-maleficence, the current study was conducted under the ethical clearance from the University of the Witwatersrand Human Research Ethics Committee (non-medical). Additionally, in conforming to these ethical principles, participants were informed that their participation in the current study was voluntary and non-remunerated, and that they were free to leave the study prior to submission of the questionnaires, or omit any items in the questionnaires, without explanation or consequences. Participants were informed, in the consent form, that the researcher did not anticipate any risk or benefit participating in the survey. Participants were assured of the confidentiality and anonymity of their responses. Participants' anonymity was protected in the following ways. No directly identifying information was requested in the demographic occupational questionnaire, and the three survey instruments. The IP addresses of participants were deleted on receipt of the data. No identifying information was reported in the research report, as analysis occurred at a group level. Confidentiality was insured by restricting access of the data to the researcher, research supervisors, and others directly associated with the study. Additionally, the data was securely and anonymously stored, and not sent over the internet, except through a secure line, during the study. The raw data was destroyed on completion of the final research study, and thereafter the study will be available in the University Library. In practicing the ethical principle of autonomy, participants were informed of the purpose and procedure (i.e. the completion of a demographic questionnaire, and three self-report scales) of the study, and were given the opportunity to request further information from the researcher, prior to consenting to participation in the study.

CHAPTER 4

RESULTS

INTRODUCTION

The results will be reported according to two research phases. Phase 1: Preliminary Scale Development: (1) Item sampling, and (2) Pilot study: item reduction by frequency, and further item reduction and rewording, resulting in the 69-item SOFCD. In Phase 2: Final Scale Administration, the 69-item SOFCD scale was statistically investigated to reveal and evaluate competing underlying factor structures. A preliminary EFA (Exploratory Factor Analysis) produced six, seven and eight factor solutions which were evaluated according to: model fit indices, item distribution per factor, factor loading patterns, theoretical interpretability, and accumulative variance. After the removal of common non-loading, and conceptually ambiguous cross-loading items, a second EFA was performed to re-evaluate the modified 64-item six, seven and eight factor solutions. The 64-item six and eight factor solutions demonstrated the most favourable model fit, and all three models were subjected to a further CFA (confirmatory factor analysis) to differentiate superior model fit. Overall the eight factor model demonstrated the best model fit and conceptual interpretability, and underwent further reliability and validity evaluation.

SUMMARY OF RESEARCH PHASE ACTIVITIES AND RESULTS

PHASE 1: PRELIMINARY SCALE DEVELOPMENT

The preliminary scale development involved the following steps, Item Sampling: The generation and qualitative classification of a comprehensive pool of workplace communication items from different disciplines and theoretical orientations, and a Pilot Study: Reduction of the pool of items by: A frequency reduction, followed by a qualitative item reduction (collapsing items and rewording).

Item Sampling

An initial item pool of 490 potential items, conforming to the seven foundational assumptions of workplace communication skills and the conceptual definition of workplace communication skills, was generated from a review of mainly Organisational literature, including literature from Speech Language Pathology, Linguistics, and Communication, across web-data bases (e.g. O*NET (Peterson et al., 2010)), existing workplace communication instruments, inventories and descriptors of workplace communication skills. A large number of redundant items (i.e. semantically overlapping and synonymous items) were deleted, new opposite or reciprocal skill items were developed, and under-represented subcategories were augmented with additional items from focused literature searches. This resulted in the 139-items preliminary SOFCD scale, deliniated into four second order

and 25 first order conceptualisations (Table 6). The wording and content of some individual items from these sources was applied to the new preliminary scale.

Pilot Study

In the Pilot Study respondents identified which communication skills occurred routinely in SA workplaces, thus reducing the 139 presented items to 119 items. This answered ***Research Question 1:*** What are the most frequently occurring verbal workplace communication skills in the South African organisational context?

Sample Characteristics

A sample of thirty currently employed participants (female = 60%, *n* = 18; male = 40%, *n* = 12; *M* age = 30.53, *SD* = 10.81) were asked to indicate the presence or absence of the 139 communication behaviors heard or observed during the previous day of work (Appendix 1). Respondents had worked in their current jobs for *M* = 5.93 years, *SD* = 8.51; full time = 80%, *n* = 24, and part time = 20%, *n* = 6, across a range of employment sectors. An equal number of respondents (36,7%, *n* = 11) had undergraduate degrees or matric, while only 16.7%, *n* = 5 and 10%, *n* = 3, had diplomas or postgraduate degrees, respectively. Respondents reported the following racial demographics and home languages: Black = 56.7%, *n* = 17; White = 16.7%, *n* = 5; Indian = 13.3%, *n* = 4; Coloured = 10%, *n* = 3; and Mixed race = 3.3.%, *n* = 1, and, English = 46.7%, *n* = 14; Afrikaans = 6.7%, *n* = 2; Zulu = 16.7%, *n* = 5; Xhosa = 10%, *n* = 3; Northern Sotho = 3.3%, *n* = 1; Tswana = 3.3%, *n* = 1; and Unspecified = 13.3, *n* = 4.

Item Reduction by Frequency

The focus of the pilot study was to narrow the 139 item pool, identified in literature as workplace communication skills, to routinely occurring SA workplace communication skills. Respondents reported hearing or observing a minimum of 42 and a maximum of 134 verbal workplace communication skills (*M* = 99.67, *SD* = 22.36). 119 workplace communication skills were observed/heard by more than 50% of respondents (Keyton, et al., 2013), and were retained **.**

Table 6. Frequency of the 139 Items Workplace Communication Skills

Item	***f***	***%***
Expressive Language		
Information Exchange		
1. Requesting information.	27	90
2. Conveying information clearly so others can understand you.	25	83.3
3. Conveying information to customers/clients, the public, government, and other external sources.	19	63.3
4. Conveying information to supervisors, colleagues, team members, or subordinates.	24	80
5. Conveying routine information.	21	70
6. Conveying complex information.	19	63.3
7. Briefing others.	21	70

Discussing		
8. Initiating open discussion.	19	63.3
9. Discussing work-related problems or issues in detail.	21	70
10. Participating in informal work-related discussions with a colleague/s	26	86.7
11. Participating in discussions in meetings with management.	15	50
12. Participating in team discussions.	20	66.7
13. Joint decision making.	10	33.3
Explaining/describing		
14. Explaining simple facts.	26	86.7
15. Explaining difficult subject matter.	23	76.7
16. Explaining to colleagues.	25	83.3
17. Explaining to clients/customers.	20	66.7
18. Describing a problem experienced or situation to a supervisor.	17	56.7
19. Translating or explaining what information means.	21	70
20. Describing how information can be used.	17	56.7
21. Explaining by giving examples.	19	63.3
Instructing		
22. Giving instructions to colleagues.	17	56.7
23. Giving instructions to subordinates .[D]	12	40
24. Giving routine instructions.	18	60
25. Giving complex instructions.	17	56.7
26. Giving clear instructions.	24	80
27. Responding verbally to instructions.	29	96.7
Leading/ Leadership Skills		
28. Leading team members. [D]	15	50
29. Leading subordinates. [D]	12	40
30. Leading/chairing meetings. [D]	11	36.7
31. Motivating Subordinates. [D]	11	36.7
32. Debriefing on completing a project. [D]	14	46.7
Persuading/Influencing		
33. Persuading or convincing others to consider different options.	21	70
34. Convincing others to change their minds or behaviour	18	60
35. Arguing or making a case for a specific view to colleagues and management.	19	63.3
36. Making a sales pitch. [D]	9	30
Formal presentation		
37. Making formal verbal presentations on projects, proposals, plans, designs, etc. [D]	14	46.7
38. Introducing someone at an event. [D]	12	40
39. Making formal presentations in large meetings (13 +). [D]	8	26.7
40. Giving a presentation to a small group (3 to 12). [D]	14	46.7
41. Giving specialist presentations to colleagues. [D]	11	36.7
Expressing negative emotion/reporting bad news		
42. Questioning or raising doubts.	20	66.7
43. Venting frustration. [D]	13	43.3
44. Complaining. [D]	12	40
45. Reporting problems.	19	63.3
46. Communicating bad news.	18	60
47. Communicating a crisis.	17	56.7
Verifying and feedback		
48. Seeking approval.	24	80
49. Providing verification or confirming.	25	83.3
50. Agreeing.	26	86.7

51. Requesting feedback	27	90
52. Giving feedback.	25	83.3
53. Praising efforts.	20	66.7
54. Providing performance feedback in a performance review.	20	66.7
Opinions		
55. Asking for opinions	22	73.3
56. Expressing opinion, ideas or alternative strategies.	21	70
57. Defining and promoting an agenda with a supervisor or management.	20	66.7
58. Exchange ideas and opinions with clients.	21	70
Questions/ interviews		
59. Interviewing for selection and recruitment. [D]	11	36.7
60. Responding verbally to interview questions. [D]	13	43.3
61. Inviting questions [D]	15	50
62. Asking straightforward questions to obtain the required information.	17	56.7
63. Asking appropriate questions for specific information from supervisors, specialists, and others.	20	66.7
64. Answering questions.	22	73.3
Interpersonal relationships		
65. Establishing constructive and cooperative working relationships with colleagues, team members, supervisors, and customers/clients.	25	83.3
66. Maintaining interpersonal relationships.	27	90
67. Building trust.	25	83.3
68. Joking/ using humour.	26	86.7
69. Networking.	22	73.3
70. Getting members of a group to work together to accomplish tasks.	19	63.3
Conflict resolution/negotiation		
71. Negotiating with team members, to try and reconcile differences. [D]	14	46.7
72. Negotiating with clients .e.g. Clarifying detailed work specifications.	17	56.7
73. Handling customer/client, or line-manager complaints.	17	56.7
74. Negotiating with supervisors. [D]	14	46.7
75. Resolving conflicts.	17	56.7
76. Showing respect for others when resolving conflicts.	19	63.3
77. Standing up for oneself.	23	76.7
Helping		
78. Calling the supervisor for help if required.	21	70
79. Offering help.	25	83
80. Providing personal assistance, emotional support, or other personal care to others such as colleagues and customers/clients.	22	73.3
81. Guiding subordinates.	18	60
82. Providing specialist advice to management.	19	60
83. Providing specialist advice to clients.	17	56.7
84. Providing specialist advice to groups/teams.	19	63.3
85. Consulting co-workers.	22	73.3
Teaching		
86. Coaching and mentoring others.	21	70
87. Teaching or instructing others.	21	70
Receptive Language		
Listening		
88. Listening attentiveness or giving full attention to what other people are saying.	28	93.3
89. Listening responsiveness: taking time to understand the points being made and asking appropriate questions.	26	86.7
90. Responding appropriately to what is heard.	26	86.7

91. Listening for main ideas	28	93.3
Comprehension		
92. Understanding short familiar messages, relating to immediate job demands.	25	83.3
93. Understanding brief questions relating to predictable areas of everyday work-related needs.	26	86.7
94. Following familiar instructions from colleagues and supervisors.	28	93.3
95. Following novel instructions.	25	83.3
96. Following complex long verbal instructions.	23	76.7
97. Understanding routine work-related conversations.	27	90
98. Understanding explanations about work-related personal situations.	27	90
99. Understanding feedback received.	26	86.7
100. Understanding conversations on everyday subjects when addressed directly.	28	93.3
101. Understanding conversations on technical subjects in own field.	28	93.3
102. Understanding colloquial speech and subject matter e.g. Slang.	25	83.3
103. Understanding complex discussions, including academic subject matter and factual reports.	26	86.7
104. Understanding speech at a fast rate.	24	80
105. Understanding information and instructions under pressure.	23	76.7
106. Understanding with differences in style and shifts in register e.g. Formal language.	25	83.3
Interpreting		
107. Understanding different viewpoints.	24	80
108. Determining colleagues'/supervisor's feelings or emotional state from conversations.	25	83.3
109. Understanding conversational inferences.	26	86.7
110. Understanding ambiguity e.g. The chicken is ready to eat.	21	70
111. Understanding abstract and figurative language e.g. Metaphors, similes, idioms (she is pulling my leg).	25	83.3
112. Understanding jokes, riddles, and humour.	25	83.3
113. Understanding sarcasm.	26	86.7
114. Understanding communicative intent e.g. Persuasion, directing etc.	30	100
115. Understanding cultural norms.	26	86.7
Pragmatics		
General pragmatics		
116. Being socially perceptive and sensitive to the feelings of others.	25	83.3
117. Adapting spoken language when interacting with different cultures.	26	86.7
118. Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers.	27	90
119. Telling personal stories in conversation.	21	70
120. Getting one's point across in a conversation.	27	90
121. Being socially approachable.	27	90
122. Generally saying the right thing at the right time in conversations.	26	86.7
Phatic utterances		
123. Thanking.	27	90
124. Greeting others.	29	96.7
Social Composure		
125. Being relaxed and comfortable when talking to others.	28	93.7
126. Conveying confidence.	26	86.7
Empathetic communication skills		
127. Empathising with others.	26	86.7
128. Validating and acknowledging others.	26	86.7
Altercentrism		
129. Showing interest in others during conversations.	28	93.3
Appropriate self-disclose		
130. Disclosing an appropriate level of personal information in conversations.	25	83.3

Conversational repair		
131. Asking for clarification in conversational incomprehension.	24	80
132. Verifying comprehension in conversations.	25	83.3
133. Repeating/ restating information to clarify conversational incomprehension.	23	76.7
134. Paraphrasing (rephrasing) information to clarify conversational incomprehension.	24	80
135. Explaining to clarify conversational incomprehension.	25	83.3
Motor speech		
136. Speaking and pronouncing words clearly so that others can understand you.	26	86.7
137. Speaking fluently.	25	83.3
138. Using voice for emphasis e.g. Speed, pitch, volume.	22	76.7
139. Using good voice projection to make public announcements and broadcasts.	20	66.7

[D] Deleted from further analysis.

In order of frequency, the top 32 communication skills reported most frequently by SA participants as occurring in SA workplaces are tabulated in Table 7.

Table 7. Top 32 most frequently identified communication behaviours in SA workplaces.

Workplace Communication Behaviour	**"Present" Responses**	
Item	***f***	**%**
Understanding communicative intent e.g. persuasion, directing	30	100
Greeting others	29	96 .7
Being relaxed and comfortable when talking to others	28	93.7
Understanding conversations on everyday subjects when addressed directly	28	93.3
Understanding conversations on technical subjects in own field		
Following familiar instructions from colleagues and supervisors		
Showing interest in others during conversations		
Understanding routine work-related conversations	27	90
Understanding explanations about work-related personal situations		
Getting one's point across in a conversation		
Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers		
Thanking		
Being socially approachable		
Requesting information		
Maintaining interpersonal relationships		
Explaining simple facts,	26	87.6
Agreeing		
Joking/using humour		
Listening responsiveness: Taking time to understand the points being made and asking appropriate questions		
Responding appropriately to what is heard		
Understanding brief questions relating to predictable areas of everyday work-related needs		
Understanding complex discussions including academic subject matter and factual reports		
Understanding conversational inferences		
Understanding sarcasm		
Understanding cultural norms		
Adapting spoken language when interacting with different cultures		
Generally saying the right thing at the right time in conversations		
Conveying confidence		
Empathising with others		

Validating and acknowledging others		
Speaking and pronouncing words clearly so others can understand you		
Participating in informal work-related discussions with colleagues	26	86.7

20 items were reported by less than 50% of respondents as being observed/heard in their workplaces, and were deleted. In order of frequency, the least reported workplace communication skills are reported in Table 8. All the items within two subcategories: Leading/ Leadership Skills, and, Formal presentation were deleted due to low frequencies.

Table 8. Bottom 20 least frequently identified communication behaviours in SA workplaces

Workplace Communication Behaviour	**" Present" Responses**	
Item	***f***	**%**
Making formal presentations in large meetings	8	26. 7
Making a sales pitch	9	30
Giving specialist presentations to colleagues	11	36.7
Motivating subordinates		
Leading/chairing meetings		
Interviewing for selection and recruitment	12	40
Leading subordinates		
Giving instructions to subordinates		
Complaining		
Introducing someone at an event		
Venting frustration	13	43.3
Responding verbally to interview questions		
Debriefing on completing a project	14	46 .7
Making formal verbal presentations on projects, proposals, plans, designs, etc		
Negotiating with team members to try and reconcile differences		
Giving a presentation to a small group		
Negotiating with supervisors		
Participating in discussions in meetings with management	15	50
Inviting questions		
Leading team members		

Further Item Reduction and Rewording

The 119 items were further reduced to 69 items (Appendix 6, Table A; Appendix 7) by eliminating redundant items within categories (i.e. collapsing semantically similar items into a single item reflective of the subcategory construct), and deleting items that did not conform to the foundational assumptions (Chapter 3: Method. Table 5), or reflected value judgements. Furthermore, the item syntax and lexicon was simplified and clarified (Appendix 6, Table A). Two subject matter experts (SME) verified the relevancy and appropriateness of the final item reductions and rewording. SME feedback suggestions regarding the cultural neutrality of the items, and the inclusion of examples within items to clarify certain professional terms (e.g. Higher order language) were instituted. These item reductions and rewording resulted in the final 69-item SOFCD scale (Appendix 7).

Response Frequency on Demographic Sample Characteristics

Bivariate analyses were conducted to assess any potential confounding relationships between the demographic variables and the frequency of the "present" verbal workplace communication skill items. Few significant associations were found between respondents' personal demographic characteristics (i.e. age, gender, race, education level, home language), and workplace demographic characteristics (i.e. job tenure, fulltime/part-time employment status), and response frequency (items with a > 50% "present" response frequency) (Appendix 8. Table B). These response frequency differences due to demographic characteristics were reflected in only a small number of 119 items: reported race (7 items), gender (4 items), reported home-language (14 items), education levels (8 items), and differences in fulltime/part-time employment status (6 items). The differences in response frequencies due to age (12 items), and tenure (16 items), could be related to an increased number and complexity of job responsibilities, at more senior job levels, with increasing age and tenure (e.g. Discussing work-related problems or issues in detail, Providing specialist advice to management, Following complex long verbal instructions, Understanding feedback, and Understanding different viewpoints). Fewer significant associations between these demographic characteristics and the 69 retained items (post-reduction and modification) were found.

PHASE 2: FINAL SCALE ADMINISTRATION

Response Rates

After pilot testing and revising, the final scale was administered to working Wits Plus students and a working sample recruited via a social network (Facebook South Africa). Out of the 370 Wits Plus students invited to participate in the administration of the 69-item SOFCD scale, 307 students returned the signed informed consent form, occupational demographic information questionnaire, the Relational Competence Scale (RCS), Communicator Competence Questionnaire (CCQ), and the 69 item SOFCD scale. This resulted in a response rate of 82.97% for the pen-and- paper administration. The social network sample (Facebook South Africa) generated 19 similar electronic Survey Monkey responses. Of the total 326 returned, pen-and-paper (307 responses), and electronic (19 responses) responses, 303 were retained for further analysis. 15 pen-and-paper responses and 8 electronic responses were considered incomplete due to a less than 75% response on the SOFCD scale, and were excluded (7.06% of returned responses). 303 responses met the retention criteria (i.e. more than 75% completed SOFCD items, and no more than 4 unanswered RCS and CCQ items). Finally, only 0.77% of SOFCD item responses, 1.6% of RCS item responses, and 0.26% of CCQ item responses were unanswered, and were mean imputed.

Sample Characteristics

The demographic and sample characteristics are reported in Table 9. Participants were more likely to be female, Black, approximately 33 years old (SD = 9.64), speak either English or Zulu as a first

language, and were employed full-time. These racial and gender demographics reflect SA population statistics and language groups in the Gauteng region (Stats SA, 2016). Most participants reported attaining either a diploma or a high school matriculation. However, all SA race and language groups, and levels of education were represented across the sample.

Participants were employed across 30 distinct economic sectors, which included all major SASCO skill-level occupational groups (SASCO, 2002). Both professional and nonprofessional jobs were equally represented in the following SA employment sectors. Professional jobs were reported in the following sectors (in order of highest to lowest *n*): Education, Financial Services, Banking, Media, and Healthcare. Non-professional jobs (in order of highest to lowest *n*) were reported in following sectors: Construction, an equal number of participants, worked in either Retail, Mining or Leisure, and 4% (*n* = 12) of the sample were employed in the Government sector. The job experience of participants, across the wide range of job sectors, was relatively high (M = 5.84 years, SD = 5.86 years) which afforded them sufficient time to gain in-depth knowledge of the communicative demands required by their jobs.

Table 9. Characteristics of Final Scale Administration Sample

Variable	**% (N)**
Mean age ± SD (years)	33.67 ± 9.641
Mean tenure ± SD (years)	5.84 ± 5.86
Gender (N = 301)	
Male	34% (103)
Female	65.3 % (198)
Reported race (N = 301)	
Black	55.4 % (168)
White	24.8% (75)
Indian	8.6% (26)
Coloured	10.2% (31)
Other	0.3% (1)
Sector (N = 291)	
Mining	4.3% (13)
Metals	1% (3)
Manufacturing	2.6%(8)
Industrial Manufacturing	1.3%(4)
Chemicals	0.3% (1)
Construction	7.3% (22)
Automotive	1% (3)
Leisure	4.3% (13)
Media	5% (15)
Healthcare	4% (12)
Education	13.5% (41)
Transport	2% (6)
Personal Services	1% (3)
Sport	1.7% (5)
Research	1.3% (4)
Banking	6.9% (21)
Asset Management	0.7% (2)

Financial Services	9.6% (29)
Insurance	2.6% (8)
Real Estate	1% (3)
Retirement Funds	0.3% (1)
Medical aid schemes	1.3% (4)
Advertising	1% (3)
Legal sector	1% (3)
Public sector	0.7% (2)
Government sector	4% (12)
Retail	4.3% (13)
Telecommunication	1.7% (5)
Technology	3% (9)
Other	7.6% (23)
Part-time/full-time employment (N = 291)	
Part-time Employment	16.5% (50)
Full-time Employment	79.5% (241)
Education Level (N = 300)	
Matric	32.3% (98)
Diploma	32% (97)
Undergraduate	22.1% (67)
Postgraduate	12.5% (38)
Language (N =302)	
English	45.9% (139)
Afrikaans	7.9% (24)
Zulu	15.2% (46)
Xhosa	5.6% (17)
South Sotho	5.6% (17)
Tswana	7.6% (23)
North Sotho	5.6% (17)
Venda	1.3% (4)
Tsonga	3% (9)
Swazi	0.3% (1)
Ndebele	0.3% (1)
Other	1.3% (4)

Item Analysis

An item level analysis of univariate normality revealed mainly negatively skewed (35 items) and abnormal kurtotic item distributions (40 items) (Table 10). Skewness and kurtosis values which fell outside of Huck's (2009) +1.00 and -1.00 normality parameter values, ranged from -1.006 to -1.789, and 1.007 to 3.826, respectively. 78.26 % (54) of the item mean scores were over 1 standard deviation above the response scale midpoint of "3", indicating negatively skewed responses. Thus, most participants responded similarly and generally evaluated the level of communicative competence required by their jobs as either "Good" or "Excellent". The Shapiro-Wilk test was significant for each item, further indicating the non-normal distribution of each item (Field, 2009). Attempts to transform the negatively skewed data, by reverse score transformations followed by Log ($\log(X_i)$) and Square root ($\sqrt{X_i}$) transformations, failed to correct the non-normality of the item data (Appendix 9. Table C).

In assessing multivariate normality, Mardia's coefficient of multivariate kurtosis was 1343.297, with a critical ratio of 125.272, greatly exceeding the accepted cut-off value of 1.96 for multivariate normality (Nimon, 2013). In conclusion, highly skewed and abnormally kurtotic items, with limited variability, as well as overall multivariate non-normality justified the use of non-parametric statistics.

Table 10. Response Means, Standard Deviations, Skewness, Kurtosis and Shapiro-Wilk Test Results.

	Min	**Max**	***M***	***SD***	**Skewness (SE = 0.140)**	**Kurtosis (SE = 0.279)**	**Shapiro-Wilk *W***
1. Conveying information to others	1	5	4.47	0.659	-1.367	3.008	0.707
2. Initiating open discussion	1	5	4.20	0.841	-1.059	1.267	0.799
3. Participating in discussions	1	5	4.09	0.866	-0.856	0.657	0.828
4. Explaining simple facts	1	5	4.25	0.770	-0.993	1.376	0.789
5. Explaining difficult subject matter	1	5	4.02	0.911	-0.972	1.175	0.826
6. Giving clear instructions	1	5	4.25	0.795	-1.084	1.647	0.785
7. Responding verbally to instructions	1	5	4.16	0.799	-1.015	1.602	0.803
8. Persuading or convincing others to consider different options	1	5	4.00	0.863	-0.566	-0.192	0.848
9. Questioning or raising doubts	1	5	3.75	1.010	-0.717	0.272	0.871
10. Reporting problems	1	5	4.06	0.926	-0.875	0.463	0.830
11. Requesting feedback	1	5	4.08	0.908	-0.914	0.534	0.824
12. Giving feedback	1	5	4.16	0.896	-0.907	0.316	0.812
13. Providing verification or confirming	1	5	4.15	0.825	-0.816	0.571	0.819
14. Agreeing	1	5	3.75	0.920	-0.553	0.477	0.867
15. Asking for opinions	1	5	3.99	0.899	-0.855	0.665	0.837
16. Expressing ideas and opinions	1	5	4.15	0.812	-0.924	1.021	0.811
17. Exchanging ideas and opinions with others	1	5	4.17	0.758	-0.794	0.830	0.808
18. Answering questions	1	5	4.22	0.814	-1.063	1.463	0.793
19. Asking appropriate questions for specific information	1	5	4.25	0.748	-0.743	0.347	0.797
20. Establishing constructive and cooperative working relationships with others	1	5	4.23	0.793	-0.764	0.134	0.802
21. Maintaining interpersonal relationships	1	5	4.20	0.801	-.0924	0.778	0.804
22. Building trust	1	5	4.28	0.781	-1.006	0.926	0.787
23. Joking/using humour	1	5	3.83	1.047	-0.832	0.304	0.857
24. Networking	1	5	3.92	0.997	-0.808	0.329	0.850
25. Resolving conflicts	1	5	3.87	0.959	-0.548	-0.117	0.865
26. Handling customers/client,	1	5	3.93	1.179	-1.155	0.595	0.799

or line–manager complaints							
27. Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers (Smalltalk)	1	5	4.05	0.941	-0.924	0.702	0.827
28. Getting one's point across in a conversation	1	5	4.14	0.746	-0.674	0.864	0.811
29. Generally saying the right thing at the right time and conversations	1	5	3.87	0.904	-0.599	0.306	0.861
30. Being socially perceptive and sensitive to the feelings of others	1	5	4.13	0.782	-0.823	1.025	0.813
31. Adapting spoken language when interacting with different cultures	1	5	3.82	0.985	-0.777	0.406	0.861
32. Thanking	1	5	4.35	0.806	-1.463	2.620	0.742
33. Greeting others	1	5	4.42	0.831	-1.789	3.826	0.699
34. Being relaxed and comfortable when talking to others	1	5	4.25	0.838	-1.314	2.371	0.772
35. Conveying confidence	1	5	4.30	0.823	-1.464	2.999	0.752
36. Empathising with others	1	5	4.11	0.943	-1.097	1.168	0.808
37. Validating and acknowledging others	1	5	4.23	0.776	-1.329	3.115	0.760
38. Showing interest in others during conversations	1	5	4.17	0.770	-1.178	2.747	0.781
39. Disclosing an appropriate level of personal information conversations	1	5	3.50	1.120	-0.640	-0.073	0.881
40. Standing up for oneself	1	5	4.04	0.921	-0.904	0.580	0.830
41. Asking for clarification in conversational incomprehension	1	5	4.16	0.792	-1.219	2.792	0.781
42. Verifying comprehension in conversations.	1	5	4.10	0.796	-1.091	2.378	0.798
43. Repeating/ restating information to clarify conversational incomprehension.	1	5	4.05	0.821	-.884	1.356	0.821
44. Paraphrasing (rephrasing) information to clarify conversational incomprehension.	1	5	3.90	0.956	-0.994	1.117	0.834
45. Explaining to clarify conversational incomprehension.	1	5	4.02	0.867	-1.108	1.931	0.808
46. Calling the supervisor for help if required.	1	5	3.91	1.059	-1.048	0.867	0.827
47. Offering help.	1	5	4.38	0.744	-1.339	2.520	0.743
48. Providing	1	5	4.36	0.748	-1.332	2.797	0.749

guidance/advice.							
49. Providing personal assistance, emotional support, or other personal care to others.	1	5	4.11	1.001	-1.211	1.196	0.795
50. Consulting co-workers.	1	5	4.13	0.824	-1.066	1.927	0.803
51. Teaching/ Coaching/ Mentoring others.	1	5	4.07	0.996	-1.135	1.058	0.808
52. Speaking and pronouncing words clearly so that others can understand you.	1	5	4.25	0.809	-1.242	2.280	0.778
53. Speaking fluently.	1	5	4.31	0.781	-1.156	1.628	0.772
54. Using voice for emphasis e.g. speed, pitch, volume.	1	5	4.06	0.953	-1.133	1.403	0.811
55. Listening with full attention.	1	5	4.23	0.787	-0.944	0.822	0.801
56. Active listening: taking time to understand the points being made and asking appropriate questions.	1	5	4.20	0.788	-0.975	1.313	0.799
57. Listening for main ideas	1	5	4.18	0.809	-1.089	1.920	0.795
58. Understanding routine work-related discussions.	1	5	4.21	0.773	-0.987	1.691	0.797
59. Understanding complex discussions, including technical subjects in own field and factual reports.	1	5	4.14	0.942	-1.408	2.405	0.774
60. Understanding familiar work-related messages and instructions.	1	5	4.21	0.786	-1.095	2.148	0.785
61. Understanding complex long verbal instructions	1	5	4.06	0.861	-1.188	2.217	0.797
62. Understanding feedback received.	2	5	4.28	0.667	-0.484	-0.428	0.791
63. Understanding differences in style and shifts in register e.g. formal language.	1	5	4.00	0.954	-1.029	1.155	0.825
64. Understanding what the communicative intent of a speaker is e.g. persuasion, directing etc.	1	5	4.09	0.857	-0.898	1.007	0.823
65. Understanding conversational inferences.	1	5	4.06	0.846	-1.135	2.091	0.802
66. Understanding cultural norms.	1	5	4.01	0.840	-0.627	0.402	0.839
67. Understanding sarcasm.	1	5	3.89	1.043	-0.966	0.639	0.839
68. Understanding jokes, riddles, and humour.	1	5	4.00	1.070	-1.142	0.886	0.809
69. Understanding metaphors, similes, idioms.	1	5	4.02	1.044	-1.195	1.195	0.804

Note. All Shapiro-Wilk values were significant at $\alpha = 0.05$

Research Question 2: What is the underlying factor structure of the SOFCD verbal-workplace communication skill items ?

SOFCD Inter-item Correlations

The fact that Pearson's correlations produce misleading non-conservative results when applied to strongly skewed and kurtotic ordinal, Likert scale data, with overall multivariate non-normality, necessitated the use of polychoric inter-item correlations as a basis for factor analysis in the present context (Basto & Pereira, 2012; Bernstein & Teng, 1989; Gilley & Uhlig, 1993; Muthen & Kaplan, 1985; Stevens, 1946). The inappropriate use of Pearson's correlations with Likert type data leads to (1) false multidimensionality of factors, as factors are based on item distribution similarity, rather than shared variance, and (2) an underestimated strength of ordinal inter-item correlations (Bernstein, Garbin, & Teng, 1988; Olsson, 1979).

Polychoric correlations between the 69 SOFCD items are presented in Table 11. The factorability of the item data was indicated by firstly, statistically significant Bartlett's test of sphericity ($X^2_{(2346)}$ = 11807.08, $p < 0.01$), Steiger test ($X^2_{(2346)}$ = 48493.749, $p < 0.01$) and Jennrich test ($X^2_{(2346)}$ = 3142.866, $p < 0.01$), and secondly, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy revealed "excellent" sampling adequacy (KMO = 0.891) (Hutcheson & Sofroniou, 1999). To avoid redundancy and multicolinearity, inter-item correlations were examined to identify pairs of highly correlated items (i.e. $r > 0.90$ (Field, 2009)). The highest correlation was $r = 0.853$ between items 68 and 69, and thus all 69 items were retained for further analysis.

Table 11. Inter-Item Correlations

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1		0.614	0.510	0.578	0.536	0.576	0.360	0.431	0.258	0.414	0.389	0.488	0.500	0.212	0.428	0.450	0.410	0.502	0.515	0.451	0.313	0.345	-0.039	0.367	0.381	0.358	0.195	0.504	0.399	0.259	0.270	0.114
2			0.774	0.578	0.474	0.484	0.365	0.380	0.311	0.357	0.288	0.366	0.308	0.170	0.380	0.440	0.505	0.481	0.459	0.527	0.348	0.378	0.160	0.360	0.340	0.212	0.240	0.438	0.412	0.387	0.318	0.201
3				0.622	0.484	0.519	0.338	0.363	0.422	0.350	0.376	0.396	0.353	0.148	0.426	0.459	0.532	0.512	0.462	0.492	0.359	0.412	0.115	0.383	0.373	0.209	0.190	0.440	0.415	0.397	0.335	0.174
4					0.688	0.567	0.402	0.376	0.359	0.274	0.265	0.360	0.411	0.235	0.325	0.358	0.397	0.580	0.510	0.368	0.303	0.309	0.101	0.193	0.210	0.190	0.133	0.406	0.363	0.228	0.186	0.027
5						0.632	0.336	0.454	0.402	0.315	0.298	0.410	0.494	0.244	0.317	0.447	0.446	0.528	0.452	0.370	0.291	0.273	-0.006	0.301	0.394	0.297	0.151	0.382	0.310	0.290	0.255	0.049
6							0.478	0.389	0.348	0.329	0.366	0.480	0.584	0.261	0.404	0.433	0.426	0.518	0.525	0.486	0.426	0.437	-0.055	0.393	0.464	0.296	0.170	0.383	0.306	0.279	0.248	0.238
7								0.400	0.324	0.315	0.272	0.249	0.389	0.320	0.378	0.343	0.345	0.362	0.381	0.370	0.350	0.322	0.163	0.233	0.295	0.289	0.258	0.360	0.236	0.213	0.206	0.243
8									0.481	0.431	0.459	0.438	0.442	0.144	0.375	0.524	0.543	0.480	0.448	0.317	0.269	0.240	0.123	0.359	0.400	0.349	0.139	0.331	0.306	0.271	0.275	0.101
9										0.465	0.337	0.244	0.300	0.180	0.301	0.406	0.376	0.436	0.360	0.295	0.182	0.204	0.096	0.289	0.364	0.194	0.146	0.307	0.197	0.152	0.186	0.000
10											0.607	0.474	0.473	0.263	0.309	0.408	0.394	0.446	0.369	0.277	0.164	0.265	-0.009	0.237	0.344	0.293	0.066	0.261	0.222	0.112	0.178	0.049
11												0.758	0.559	0.261	0.459	0.438	0.349	0.457	0.343	0.320	0.308	0.378	0.012	0.403	0.420	0.347	0.124	0.337	0.259	0.270	0.320	0.207
12													0.735	0.223	0.441	0.503	0.348	0.523	0.466	0.375	0.386	0.400	-0.033	0.373	0.435	0.402	0.198	0.419	0.265	0.315	0.319	0.224
13														0.355	0.417	0.492	0.344	0.525	0.511	0.430	0.402	0.401	-0.090	0.386	0.356	0.419	0.195	0.412	0.296	0.260	0.297	0.127
14															0.380	0.271	0.181	0.219	0.276	0.240	0.338	0.276	0.216	0.219	0.169	0.153	0.297	0.338	0.299	0.230	0.284	0.236
15																0.566	0.475	0.459	0.409	0.374	0.313	0.296	0.201	0.294	0.346	0.349	0.313	0.503	0.387	0.379	0.310	0.249
16																	0.767	0.602	0.549	0.423	0.332	0.316	0.190	0.425	0.339	0.306	0.299	0.460	0.401	0.290	0.311	0.177
17																		0.632	0.586	0.431	0.340	0.311	0.221	0.465	0.271	0.213	0.278	0.437	0.410	0.323	0.293	0.304
18																			0.720	0.421	0.309	0.376	0.022	0.319	0.314	0.301	0.178	0.524	0.436	0.346	0.302	0.203
19																				0.549	0.442	0.449	0.023	0.407	0.419	0.386	0.240	0.529	0.424	0.312	0.321	0.199
20																					0.695	0.636	0.165	0.463	0.511	0.309	0.257	0.480	0.386	0.433	0.382	0.398
21																						0.735	0.290	0.490	0.470	0.397	0.385	0.348	0.346	0.409	0.320	0.431
22																							0.187	0.513	0.468	0.332	0.329	0.421	0.329	0.378	0.291	0.486
23																								0.321	0.132	0.089	0.438	0.204	0.223	0.234	0.125	0.269
24																									0.549	0.351	0.385	0.380	0.289	0.304	0.225	0.299
25																										0.572	0.314	0.380	0.294	0.436	0.370	0.240
26																											0.368	0.331	0.289	0.269	0.375	0.246
27																												0.495	0.436	0.331	0.251	0.335
28																													0.562	0.353	0.372	0.352
29																														0.523	0.507	0.475
30																															0.498	0.476
31																																0.435

	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
1	0.202	0.293	0.381	0.183	0.362	0.175	0.105	0.261	0.421	0.374	0.329	0.303	0.298	0.200	0.217	0.302	0.138	0.187	0.107	0.307	0.363	0.365	0.449	0.464	0.340
2	0.257	0.388	0.419	0.261	0.336	0.248	0.145	0.334	0.356	0.401	0.359	0.351	0.390	0.167	0.259	0.338	0.184	0.243	0.274	0.350	0.402	0.382	0.376	0.367	0.346
3	0.278	0.400	0.421	0.193	0.224	0.190	0.142	0.303	0.273	0.366	0.316	0.332	0.366	0.132	0.310	0.316	0.092	0.148	0.271	0.309	0.428	0.381	0.389	0.346	0.352
4	0.110	0.340	0.396	0.089	0.287	0.213	0.163	0.276	0.375	0.428	0.401	0.397	0.427	0.121	0.258	0.356	0.009	0.213	0.236	0.332	0.441	0.415	0.451	0.469	0.356
5	0.071	0.295	0.352	0.159	0.246	0.200	0.088	0.253	0.373	0.376	0.357	0.346	0.332	0.133	0.191	0.324	0.097	0.238	0.204	0.258	0.301	0.274	0.341	0.414	0.388
6	0.237	0.337	0.422	0.238	0.366	0.236	0.170	0.316	0.457	0.456	0.367	0.325	0.418	0.131	0.291	0.360	0.168	0.232	0.291	0.402	0.470	0.386	0.443	0.452	0.396
7	0.282	0.356	0.409	0.232	0.407	0.326	0.171	0.293	0.282	0.246	0.383	0.317	0.379	0.285	0.276	0.283	0.272	0.339	0.308	0.348	0.393	0.433	0.295	0.246	0.281
8	0.080	0.192	0.328	0.152	0.233	0.179	0.122	0.336	0.351	0.322	0.416	0.285	0.404	0.207	0.210	0.372	0.153	0.290	0.237	0.225	0.313	0.376	0.385	0.363	0.387
9	-0.062	0.199	0.272	0.110	0.162	0.087	0.213	0.372	0.369	0.295	0.258	0.267	0.334	0.214	0.309	0.329	0.066	0.295	0.163	0.181	0.290	0.240	0.209	0.282	0.269
10	0.089	0.191	0.293	0.104	0.206	0.170	0.070	0.313	0.405	0.343	0.294	0.250	0.300	0.327	0.314	0.287	0.178	0.295	0.210	0.263	0.243	0.151	0.275	0.271	0.268
11	0.215	0.277	0.337	0.099	0.214	0.110	0.026	0.308	0.364	0.272	0.251	0.199	0.302	0.266	0.348	0.366	0.118	0.195	0.262	0.307	0.294	0.161	0.295	0.335	0.202
12	0.249	0.332	0.328	0.127	0.269	0.220	0.029	0.290	0.408	0.386	0.330	0.326	0.407	0.220	0.390	0.398	0.127	0.235	0.259	0.291	0.356	0.263	0.422	0.394	0.356
13	0.163	0.279	0.385	0.146	0.284	0.225	0.074	0.292	0.443	0.415	0.378	0.326	0.472	0.335	0.408	0.463	0.137	0.333	0.226	0.356	0.369	0.363	0.437	0.428	0.399
14	0.249	0.295	0.315	0.214	0.245	0.275	0.265	0.250	0.043	0.066	0.178	0.115	0.168	0.241	0.229	0.205	0.230	0.313	0.179	0.210	0.170	0.177	0.180	0.187	0.144
15	0.282	0.350	0.371	0.317	0.340	0.275	0.173	0.332	0.217	0.212	0.163	0.214	0.238	0.140	0.244	0.272	0.258	0.290	0.228	0.274	0.358	0.290	0.287	0.259	0.255
16	0.246	0.374	0.457	0.192	0.262	0.183	0.123	0.358	0.452	0.346	0.288	0.310	0.329	0.166	0.243	0.287	0.144	0.263	0.247	0.266	0.345	0.329	0.335	0.280	0.283
17	0.300	0.422	0.438	0.224	0.312	0.210	0.183	0.270	0.411	0.337	0.259	0.321	0.331	0.165	0.235	0.344	0.232	0.286	0.313	0.351	0.477	0.414	0.440	0.360	0.393
18	0.228	0.374	0.434	0.237	0.278	0.248	0.185	0.355	0.493	0.471	0.387	0.405	0.412	0.215	0.334	0.364	0.037	0.211	0.201	0.310	0.431	0.315	0.532	0.563	0.458
19	0.215	0.358	0.467	0.263	0.305	0.273	0.187	0.354	0.485	0.472	0.406	0.426	0.405	0.170	0.274	0.382	0.085	0.276	0.221	0.360	0.474	0.345	0.421	0.481	0.420
20	0.407	0.360	0.466	0.315	0.464	0.213	0.164	0.297	0.371	0.434	0.349	0.361	0.419	0.123	0.382	0.380	0.189	0.260	0.252	0.403	0.448	0.424	0.388	0.369	0.357
21	0.438	0.368	0.464	0.321	0.476	0.338	0.267	0.325	0.295	0.391	0.382	0.380	0.435	0.117	0.358	0.341	0.355	0.358	0.295	0.404	0.435	0.415	0.406	0.317	0.326
22	0.473	0.417	0.534	0.285	0.472	0.355	0.259	0.361	0.379	0.423	0.429	0.392	0.449	0.124	0.428	0.350	0.252	0.346	0.227	0.394	0.498	0.402	0.458	0.390	0.338
23	0.302	0.240	0.172	0.221	0.226	0.344	0.215	0.262	-0.013	0.061	0.114	0.268	0.160	0.107	0.191	0.260	0.390	0.256	0.301	0.216	0.189	0.265	0.065	-0.017	0.165
24	0.259	0.415	0.374	0.165	0.249	0.157	0.159	0.316	0.320	0.276	0.216	0.222	0.216	0.146	0.311	0.303	0.218	0.297	0.214	0.330	0.431	0.302	0.348	0.333	0.356
25	0.280	0.384	0.434	0.398	0.363	0.249	0.125	0.382	0.357	0.322	0.280	0.220	0.326	0.060	0.288	0.301	0.317	0.307	0.324	0.372	0.411	0.274	0.368	0.363	0.257
26	0.227	0.286	0.320	0.331	0.291	0.210	0.107	0.277	0.280	0.246	0.225	0.208	0.239	0.195	0.315	0.355	0.279	0.283	0.175	0.207	0.205	0.187	0.195	0.216	0.203
27	0.289	0.453	0.341	0.356	0.383	0.308	0.288	0.315	0.200	0.190	0.201	0.233	0.216	0.263	0.406	0.341	0.447	0.418	0.344	0.260	0.288	0.265	0.125	0.186	0.219
28	0.347	0.506	0.484	0.280	0.370	0.344	0.267	0.393	0.364	0.397	0.419	0.384	0.314	0.203	0.377	0.438	0.290	0.323	0.298	0.356	0.446	0.351	0.408	0.492	0.484
29	0.330	0.572	0.504	0.354	0.400	0.361	0.343	0.352	0.323	0.416	0.370	0.312	0.310	0.117	0.320	0.352	0.241	0.315	0.296	0.279	0.369	0.365	0.358	0.421	0.280
30	0.426	0.385	0.367	0.560	0.425	0.296	0.179	0.249	0.154	0.306	0.225	0.230	0.222	0.063	0.346	0.191	0.382	0.207	0.226	0.221	0.289	0.302	0.380	0.303	0.289
31	0.451	0.429	0.378	0.326	0.382	0.332	0.275	0.273	0.219	0.246	0.216	0.269	0.221	0.084	0.218	0.150	0.250	0.197	0.155	0.276	0.237	0.285	0.288	0.314	0.226
32	0.775	0.558	0.394	0.491	0.532	0.421	0.382	0.244	0.236	0.219	0.242	0.239	0.229	0.154	0.356	0.238	0.383	0.266	0.218	0.250	0.334	0.291	0.327	0.257	0.209
33		0.654	0.492	0.516	0.547	0.459	0.240	0.214	0.260	0.250	0.208	0.240	0.237	0.151	0.340	0.241	0.319	0.232	0.258	0.267	0.344	0.319	0.356	0.226	0.264
34			0.703	0.437	0.515	0.374	0.280	0.290	0.363	0.310	0.263	0.306	0.341	0.166	0.390	0.376	0.260	0.257	0.367	0.362	0.426	0.369	0.298	0.326	0.341
35				0.314	0.409	0.329	0.241	0.512	0.446	0.434	0.377	0.353	0.419	0.162	0.341	0.360	0.170	0.242	0.300	0.441	0.567	0.419	0.381	0.458	0.332
36					0.727	0.581	0.328	0.205	0.160	0.205	0.166	0.179	0.201	0.139	0.465	0.352	0.517	0.278	0.345	0.230	0.208	0.255	0.337	0.253	0.254
37						0.757	0.355	0.212	0.246	0.300	0.342	0.311	0.324	0.263	0.487	0.469	0.440	0.297	0.370	0.368	0.418	0.417	0.443	0.353	0.358
38							0.400	0.242	0.219	0.203	0.356	0.339	0.315	0.188	0.392	0.461	0.396	0.264	0.399	0.382	0.367	0.496	0.423	0.370	0.412
39								0.323	0.241	0.192	0.202	0.269	0.228	0.218	0.219	0.139	0.259	0.330	0.152	0.173	0.164	0.265	0.177	0.240	0.254
40									0.548	0.498	0.346	0.333	0.344	0.230	0.315	0.235	0.283	0.355	0.219	0.176	0.280	0.220	0.298	0.296	0.299
41										0.727	0.456	0.381	0.548	0.259	0.320	0.261	0.148	0.336	0.180	0.313	0.370	0.252	0.405	0.415	0.435
42											0.618	0.582	0.609	0.255	0.355	0.314	0.210	0.359	0.181	0.274	0.378	0.284	0.454	0.397	0.438
43												0.721	0.727	0.258	0.375	0.385	0.285	0.394	0.263	0.293	0.293	0.316	0.412	0.471	0.449
44													0.694	0.210	0.270	0.290	0.186	0.247	0.183	0.306	0.277	0.301	0.280	0.365	0.357
45														0.325	0.362	0.384	0.212	0.355	0.301	0.445	0.422	0.471	0.465	0.453	0.447
46															0.410	0.363	0.232	0.412	0.094	0.225	0.166	0.161	0.206	0.162	0.226
47																0.669	0.489	0.368	0.365	0.317	0.323	0.323	0.412	0.354	0.333
48																	0.461	0.452	0.572	0.389	0.380	0.395	0.343	0.392	0.454
49																		0.581	0.531	0.253	0.207	0.287	0.292	0.185	0.262
50																			0.494	0.343	0.319	0.329	0.324	0.295	0.309
51																				0.416	0.419	0.411	0.280	0.262	0.317
52																					0.792	0.648	0.485	0.405	0.429
53																						0.653	0.605	0.545	0.513
54																							0.614	0.470	0.490
55																								0.715	0.567
56																									0.680

	58	59	60	61	62	63	64	65	66	67	68	69
1	0.421	0.406	0.473	0.346	0.455	0.382	0.434	0.302	0.233	0.033	0.076	0.141
2	0.315	0.303	0.418	0.323	0.425	0.263	0.341	0.349	0.215	0.093	0.096	0.214
3	0.354	0.363	0.346	0.320	0.448	0.308	0.403	0.403	0.228	0.128	0.101	0.198
4	0.289	0.475	0.463	0.390	0.397	0.359	0.426	0.375	0.136	0.177	0.174	0.238
5	0.272	0.468	0.435	0.435	0.425	0.354	0.403	0.336	0.166	0.072	0.062	0.131
6	0.415	0.472	0.527	0.376	0.522	0.360	0.403	0.354	0.259	0.069	0.077	0.195
7	0.382	0.362	0.323	0.426	0.416	0.363	0.408	0.349	0.189	0.178	0.185	0.230
8	0.364	0.353	0.462	0.398	0.380	0.291	0.358	0.379	0.212	0.146	0.116	0.197
9	0.269	0.423	0.368	0.388	0.357	0.173	0.238	0.216	0.114	0.131	0.062	0.147
10	0.358	0.360	0.438	0.373	0.389	0.150	0.288	0.205	0.141	0.019	-0.02	0.081
11	0.273	0.364	0.358	0.323	0.496	0.221	0.327	0.219	0.090	0.010	0.014	0.037
12	0.375	0.360	0.405	0.374	0.526	0.299	0.377	0.275	0.131	0.021	-0.005	0.077
13	0.461	0.500	0.487	0.459	0.531	0.388	0.361	0.282	0.142	0.039	0.007	0.132
14	0.293	0.202	0.275	0.204	0.299	0.253	0.146	0.167	0.211	0.115	0.179	0.219
15	0.304	0.276	0.289	0.241	0.369	0.244	0.269	0.249	0.263	0.078	0.128	0.174
16	0.292	0.282	0.327	0.343	0.425	0.258	0.386	0.296	0.215	0.132	0.165	0.254
17	0.269	0.364	0.426	0.377	0.438	0.296	0.450	0.460	0.275	0.162	0.197	0.294
18	0.337	0.437	0.500	0.431	0.495	0.292	0.418	0.329	0.165	0.095	0.085	0.187
19	0.396	0.516	0.551	0.427	0.514	0.373	0.441	0.294	0.177	0.098	0.052	0.142
20	0.415	0.307	0.417	0.313	0.393	0.297	0.468	0.293	0.252	0.045	0.075	0.153
21	0.373	0.341	0.468	0.363	0.347	0.341	0.388	0.280	0.271	0.138	0.138	0.195
22	0.367	0.301	0.479	0.307	0.410	0.288	0.415	0.317	0.228	0.139	0.195	0.266
23	0.128	0.114	0.089	0.165	0.069	0.167	0.096	0.210	0.198	0.352	0.513	0.455
24	0.333	0.341	0.390	0.323	0.417	0.283	0.372	0.335	0.165	0.189	0.274	0.226
25	0.329	0.396	0.359	0.347	0.340	0.308	0.368	0.277	0.263	0.104	0.134	0.179
26	0.380	0.377	0.317	0.356	0.285	0.314	0.271	0.218	0.165	0.080	0.089	0.151
27	0.252	0.216	0.248	0.266	0.166	0.231	0.255	0.286	0.288	0.348	0.345	0.370
28	0.396	0.377	0.416	0.332	0.475	0.348	0.448	0.382	0.311	0.250	0.186	0.267
29	0.310	0.354	0.329	0.397	0.362	0.417	0.415	0.464	0.379	0.266	0.275	0.383
30	0.229	0.235	0.221	0.229	0.286	0.331	0.316	0.454	0.259	0.191	0.267	0.256
31	0.286	0.287	0.213	0.211	0.259	0.296	0.263	0.316	0.415	0.138	0.156	0.209
32	0.273	0.069	0.274	0.204	0.315	0.339	0.298	0.381	0.347	0.312	0.358	0.380
33	0.298	0.049	0.250	0.147	0.256	0.233	0.223	0.284	0.286	0.182	0.256	0.289
34	0.304	0.288	0.224	0.323	0.297	0.373	0.340	0.466	0.365	0.237	0.275	0.351
35	0.434	0.376	0.436	0.359	0.479	0.329	0.375	0.375	0.300	0.183	0.144	0.276
36	0.311	0.212	0.177	0.215	0.191	0.295	0.159	0.288	0.333	0.200	0.240	0.267
37	0.425	0.300	0.321	0.349	0.329	0.393	0.383	0.334	0.432	0.247	0.330	0.375
38	0.367	0.291	0.311	0.326	0.337	0.408	0.264	0.246	0.295	0.203	0.258	0.295
39	0.326	0.288	0.349	0.307	0.252	0.348	0.311	0.340	0.294	0.421	0.385	0.406
40	0.327	0.290	0.409	0.279	0.369	0.123	0.305	0.229	0.219	0.203	0.214	0.239
41	0.370	0.425	0.628	0.439	0.401	0.339	0.416	0.356	0.206	0.088	0.125	0.199
42	0.319	0.359	0.510	0.387	0.338	0.375	0.419	0.405	0.285	0.175	0.175	0.281
43	0.354	0.441	0.532	0.459	0.432	0.491	0.425	0.418	0.237	0.231	0.202	0.286
44	0.284	0.420	0.443	0.411	0.381	0.414	0.408	0.371	0.219	0.199	0.189	0.297
45	0.384	0.467	0.499	0.504	0.338	0.467	0.402	0.435	0.261	0.247	0.200	0.352
46	0.337	0.255	0.420	0.315	0.274	0.165	0.178	0.129	0.189	0.119	0.130	0.176
47	0.442	0.313	0.393	0.281	0.392	0.255	0.327	0.316	0.247	0.197	0.227	0.226
48	0.410	0.511	0.377	0.338	0.442	0.334	0.299	0.289	0.260	0.238	0.195	0.309
49	0.260	0.202	0.208	0.178	0.179	0.269	0.216	0.350	0.362	0.337	0.396	0.330
50	0.334	0.339	0.436	0.336	0.264	0.282	0.248	0.247	0.203	0.252	0.188	0.234
51	0.199	0.329	0.166	0.258	0.240	0.333	0.303	0.392	0.270	0.291	0.205	0.263
52	0.458	0.473	0.469	0.478	0.399	0.474	0.467	0.409	0.281	0.277	0.254	0.313
53	0.454	0.463	0.499	0.472	0.501	0.423	0.553	0.484	0.284	0.312	0.312	0.377
54	0.404	0.342	0.388	0.466	0.402	0.553	0.490	0.507	0.345	0.359	0.343	0.402
55	0.479	0.358	0.479	0.482	0.517	0.441	0.487	0.465	0.321	0.271	0.299	0.337
56	0.463	0.485	0.500	0.470	0.532	0.419	0.495	0.421	0.224	0.206	0.221	0.261
57	0.609	0.483	0.472	0.444	0.385	0.529	0.550	0.487	0.384	0.316	0.323	0.396
58		0.609	0.663	0.513	0.542	0.413	0.499	0.393	0.412	0.244	0.263	0.374
59			0.681	0.658	0.542	0.433	0.459	0.443	0.260	0.301	0.234	0.276
60				0.587	0.621	0.420	0.506	0.418	0.237	0.232	0.204	0.294
61					0.600	0.614	0.617	0.574	0.313	0.339	0.272	0.367
62						0.487	0.581	0.475	0.283	0.190	0.104	0.232
63							0.645	0.638	0.399	0.412	0.376	0.437
64								0.704	0.416	0.390	0.302	0.381
65									0.612	0.521	0.446	0.495
66										0.512	0.432	0.489
67											0.799	0.747
68												0.853

Factor Analysis

A factor analytic (FA) approach was used in the current study to explain the underlying latent structure of the scale items, rather than the alternative principal components analysis (PCA), for the following reasons. FA extracts factors on the basis of shared variance between variables (differentiating shared variance from unique and error variance) (Baglin, 2014; Costello & Osborne, 2005). Principal components analysis (PCA), is primarily a data reduction method, which utilises all of the variance of the manifest variables, without differentiating shared from unique and error variance, thus assuming that each variable is measured without error (Baglin, 2014; Costello & Osborne, 2005; Ford, MacCallum, & Tait, 1986). Unweighted least squares (ULS) (Minimum Residual method) extraction method was selected as it is robust to violations of item normality (Nunnally & Bernstein, 1993). The two EFAs (pre-deletion and post-deletion of items) are reported according to the standard factor extraction, rotation, and interpretation phases.

Standard Factor Extraction

In the extraction phase, the convergent results of a combination of Kaiser criterion (retaining eigenvalues > 1) (Kaiser, 1960), its alternative Parallel analysis (Horn, 1965; O'Connor, 2000), the Scree test (Cattell, 2010) and its non-graphical solutions: Optimal Coordinate and Acceleration Factor (Raiche, Roipel, & Blais, 2006), Velicer's minimum average partial (MAP) (Velicer, 1976), calculating the lowest minimum average partial correlations, and Very simple structure (VSS) (Revelle & Rocklin, 1979), were used to estimate the number of probable factors or components to retain. Kaiser's criterion indicated the extraction of 15 factors with eigenvalues greater than 1 (Factor 1, $\lambda = 23.44$; Factor 2, $\lambda = 4.98$; Factor 3, $\lambda = 3.22$; Factor 4, $\lambda = 2.44$; Factor 5, $\lambda = 2.17$; Factor 6, $\lambda = 1.96$; Factor 7, $\lambda = 1.72$; Factor 8, $\lambda = 1.67$, Factor 9, $\lambda = 1.45$; Factor 10, $\lambda = 1.41$; Factor 11, $\lambda = 1.28$; Factor 12, $\lambda = 1.17$, Factor 13, $\lambda = 1.16$; Factor 14, $\lambda = 1.10$; Factor 15, $\lambda = 1.03$).

Almost all of the variance was accounted for by the first factor (33.97%), and the majority of the variance was accounted for by the first eight factors (60,28%). A visual inspection of the scree plot of eigenvalues suggested a 4 factor model (Figure 5), while non-graphical solutions indicated a 6 factor solution (Optimal coordinate) and a 1 factor solution (Acceleration Factor) (Figure 5). The Parallel analysis indicated that the eigenvalue for the sixth extracted factor ($\lambda = 1.77$) was nearly equal to the eigenvalue expected by chance ($\lambda = 1.75$), suggesting a 6 factor solution. Velicer's minimum average squared partial correlations ($MAPr^2$) supported an 8 factor solution, and squared partial correlations raised to the fourth power ($MAPr^4$) suggested an 11 factor solution. The very simple structure (VSS) complexity 2 solution consisting of 7 factors produced a maximal goodness-of-index of 0.917.

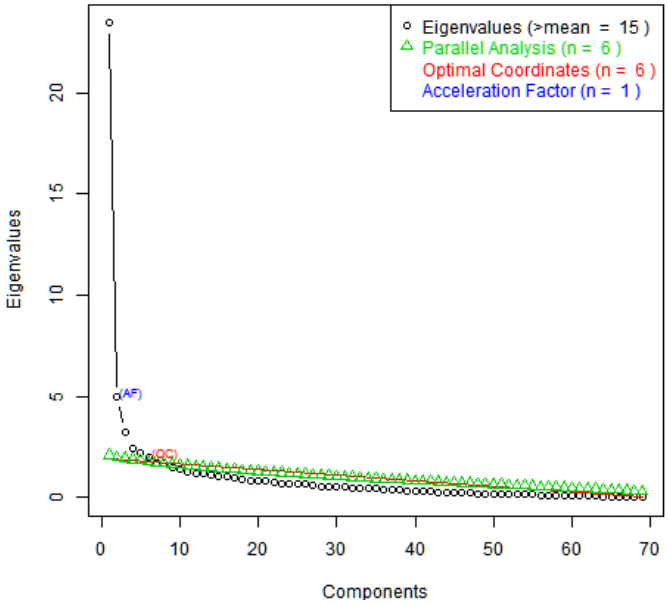

Figure 5. EFA Scree Plot indicating factors to be extracted according to Kaiser Criterion, Parallel Analysis, the Optimal Coordinates and the Acceleration Factor.

Taken together, these results indicated a number of probable factors or components to extract (i.e. Kaiser criterion =15; Parallel analysis = 6; Scree test = 4; Optimal Coordinate = 6; Acceleration Factor = 1; $MAPr^2$ = 8; $MAPr^4$ = 11; and VSS = 7). However, Kaiser's criterion (15 factor solution) is widely reported to grossly overestimate the number of factors to be extracted, and the scree plot 4 factor solution is ambiguous and subjective as no clear "elbow" is depicted in the eigenvalues (Ruscio & Roche, 2012). Additionally, the use of the Acceleration Factor (AF) method (a 1 factor solution) with ordinal data is reported to substantially under-estimate the number of extractable factors in simulation studies, and is reported to produce accurate results only 45.91 % of the time (Ruscio & Roche, 2012). The following 4 modern techniques have demonstrated unbiased accurate estimations of dimensionality within simulation studies using ordinal data: Parallel analysis (76.42% accuracy), Optimal Coordinate (74.03% accuracy), $MAPr^2$ (59.6 % accuracy) and Very simple structure (reported as more accuracy in revealing the true factor structure, than other methods (Revelle & Rocklin, 1979)) (Ruscio & Roche, 2012). The six, seven, and eight factor models suggested by the 4 modern techniques accounted for more than 50% of the total common variance: 55.37%, 57.86%, and 60.28% respectively. Two EFAs (pre-deletion and post-deletion of items) were conducted to further investigate these alternative models.

Rotation

An orthogonal (Varimax) rotation was initially applied to the data, was followed by various oblique rotations: Oblimin Quartimin-Q, Oblimin Biquartimin-Q, Simplimax-Q, Bentler T-T, Bentler Q-Q, Tandem I-T and Tandem II-T (suggested by inter-factors correlations). The Tandem II-T oblique

rotation resulted in the most interpretable solution, and was applied in the EFA of the six, seven, and eight factor models.

Pre-deletion EFA Model Fit Results

The six, seven, and eight factor EFA models were evaluated by examining the: (1) Model fit statistics, (2) Residual correlations (i.e. > 0.05 in absolute value), (3) Number of item loadings per factor, (4) Pattern of rotated factor loadings (non-loading and cross loading items), (5) The clarity of the theoretical interpretability of the factors, and (6) Accumulative variance explained by the model and the distribution of variance across factors.

Table 12. Pre item-deletion (69 items) A, and Post item-deletion (64 items) B, EFA Model Fit Indices

Model	**RMSR**	**GFI**		**RMSP**	**% Residuals**
		GFI (ULS)	**GFI (ML)**		
A. 69-items					
Six-factor	0.052	0.957	0.565	0.120	31.88
Seven-factor	0.049	0.961	0.575	0.120	29.24
Eight-factor	0.046	0.966	0.587	0.119	26.56
B. 64-items					
Six-factor	0.052	0.958	0.584	0.121	29.71
Seven-factor	0.049	0.962	0.594	0.121	29.02
Eight-factor	0.046	0.967	0.604	0.121	24.9

Note. RMSR = Root mean square residual, off-diagonal; GFI = Goodness-of-fit Index; RMSP = Root mean square partial correlations; % Residuals = Percent inter-item residuals > 0.05 out of 2346 unique correlations.

69-Item Six Factor Solution

In terms of the fit statistics, the RMSR (0.052) indicated a "good" model fit, the GFI (ULS) (0.957) suggested a "very good" fit, and the RMSP (0.120) of less than 2, indicated a "satisfactory" fit. However, the 31.88% of inter-item residuals larger than 0.05 suggested a relatively weak model fit (Table 15A). Although factor loadings were in the moderate to strong range (0.410 to 0.832), they demonstrated an unbalanced distribution across factors (F1 = 12 items; F2 = 7 items; F3 = 13 items, F4 = 8 items, F5 =13 items, F6 = 7 items) (Appendix 10: Table D). Three items failed to load onto the six factors (Items: 7, 14, and 25), and six items cross-loaded onto 2 factors (Items: 4, 6,10,11,12, and 65) (Appendix 10: Table D). The theoretical interpretability of the six factor model was examined in terms of the conceptual congruence of item sets loading onto individual factors. Overall, the six factor model was theoretically interpretable and the factors were labelled as follows. Factor 1: Receptive Language (items relating to listening and understanding); Factor 2: Higher Order Language (items relating to understanding conversational inferences, ambiguity, abstract and figurative language); Factor 3: Pragmatic skills (items relating to social perceptiveness and contextual appropriateness) and Relational Skills; Factor 4: Caring and Help (items relating to requesting/offering/providing various forms of assistance); Factor 5: Expressive Language (items relating to various communicative intents

e.g. information exchange, discussing, explaining, instructing, persuading/influencing, questioning, and offering opinions), and Factor 6: Conversational Repair (items relating to strategies to repair conversational breakdown). Conceptual incongruity of the following items within Factor 1(Items 52, 53 and 54), Factor 4 (Item 13 and 26) and Factor 6 (Item 40 and 60) contributed to some unclear theoretical interpretability of the six factor model (Appendix 10: Table D). The final six factor solution accounted for 55.38% of the variance post-rotation, with the following factors contributing relatively equal amounts of variance to the total accumulated variance (F1 = 10,25%, F2 =8.22%, F3 = 9.27% , F4 = 7.83%, F5 = 10.42%, F6 = 9.39%).

69-Item Seven Factor Solution

The seven factor solution demonstrated an improvement in fit statistics over the six factor solution. The RMSR (0.049) fell into the "very good" model adjustment category, the "very good" GFI (ULS) (0.961) fit indicated a slight improvement over the six factor GFI (ULS), and an equivalent RMSP (0.120) indicated a "satisfactory" fit. The low percentage of inter-item residuals larger than 0.05 (29.24%) indicated an improved fit relative to the six factor model (Table 12A). The seven factor model demonstrated a more even distribution of the primary item loadings (≥ 0.4) across the seven factors (F1 = 8 items; F2 = 5 items; F3 = 10 items, F4 = 6 items, F5 = 12 items, F6 = 6 items, F7 = 6 items). The large majority of items loading were moderate, in the range 0.400 to 0.819. Four items failed to load onto the seven factors (Items: 7, 14, 24, and 25), and 12 items cross-loaded onto 2 factors (Items: 6, 8, 20, 23, 36, 38, 58, 59, 60, 62, 63, and 65) (Appendix 11: Table E). The seven factor solution was theoretically interpretable, and differentiated a seventh latent factor, Resolving (items related to resolving conflict/problems, verifying, and requesting/giving feedback). However, seven conceptually incompatible items were identified within the following factors: Factor 1 (Items 52, 53 and 54), Factor 4 (Item 23), Factor 6 (Items 40 and 60), and, Factors 7 (Item: 62) (Appendix 11: Table E). The seven factor model accounted for an accumulative variance of 57.86%, with variance relativity more equally distributed across individual factors (F1 = 9.20 %; F2 = 7.65%; F3 = 8.34%, F4 = 7.13%, F5 = 9.11%, F6 = 8.47%, F7 = 7.97%).

69-Item Eight Factor Solution

The eight factor solution displayed the best model fit with an RMSR of 0.046 ("very good"), a GFI (ULS) of 0.966 ("excellent" fit), and the lowest RMSP at 0.119, suggesting a slight improvement in fit relative to the other models. A reduced percentage of inter-item residuals larger than 0.05 (i.e. 26.56%) indicated that the eight factor model best reproduced the observed correlation matrix (Table 12A). Supporting the model fit indices, the eight factor model primary factor loadings range from 0.406 to 0.826, and were largely evenly distributed across the 8 factors, with the exception of Factor 5 which contained 12 items (F1 = 8 items; F2 = 5 items; F3 = 6 items, F4 = 6 items, F5 =12 items, F6 = 6 items, F7 = 5 items, F8 = 6 items). Four items failed to load onto the 8 factors (Items: 7, 14, 28, and

46), and 11 items cross-loaded onto 2 factors (Items: 8, 23, 36, 37, 38, 53, 58, 59, 60, 62, and 65) Appendix 12: Table F). The eight factor model offered the most clear and distinct interpretability of the three models. The combination of items composing the eight factors offered a clearer conceptualisation of these factors. The Pragmatic and Relational Skills factor was further differentiated into two separate factors. Only four items were conceptually unreflective of the factor they loaded onto, Factor 1 (Items: 52, 53 and 54), and Factor 6 (Item 60) (Appendix 12: Table F). The eight factor solution accounted for 60.27% of the variance post-rotation, with an even distribution of variance accounted for by each factor (F1 = 8.49 %; F2 = 7.09 %; F3 = 7.38 %, F4 = 6.60 %, F5 = 8.42 %, F6 = 7.76 %, F7 = 7.27 %, F8 = 7.26 %).

Post-Deletion EFA Model Results

Removal of Poor Items

The SOFCD scale was inspected for potential poor items for deletion, by reviewing the factor loading patterns and conceptual interpretability across the six, seven and eight EFA models, inter-item correlations, residual correlations, item means, and communalities. Item 7: Responding verbally to instructions, and Item 14: Agreeing, failed to load significantly onto any of the factors within the six, seven and eight EFA models. Deletion of Item 7 and 14 was further justified, as Item 14 displayed a low range of inter-item correlations (r = 0.043 to r = 0.380) and a low item mean (M = 3.75), both items displayed higher residual correlations relative to other items, and the lowest item communalities across models. Potentially poor items due to cross-loading were selected across the three models, as follows: cross-loading Items 8, 23, 36, 37, 38, 58, 59, 60, 62, were common to the seven and eight factor models, and Item 65 cross-loaded in all three models. However, within these cross-loading items, a set of cross-loading items, with similar primary and secondary loadings, demonstrated both conceptual and statistical reasons for retaining them. Firstly, the statistical overlap in the primary and secondary factor loadings of Items 8, 36, 37, 38, 59, 62 and 65 made conceptual sense (e.g. Item 36: Empathising with others, is both a Care and Help communication skill and a Pragmatic skill) (Table 13). Secondly, the retention of these items was supported by the following statistical justification. A large percentage of moderate to strong inter-item correlations (Items: 8, 19, 37, 38, 59, 62, and 65), a very high percentage of residual correlations below 0.05 across the models, item means above the mid-point of the response scale, and communalities nearing /greater than 0.5, with higher communalities for the eight factor solution (Table 14).

Table 13. Conceptual Justification for Retained Cross-Loaded Items

Item Retained	**Primary Loading**	**Secondary Loading**
8. Persuading or convincing others to consider different opinions	F 5: Expressive Language (0.445) [8] (0.436)[7]	F 7: Resolving (0.419) [8] (0.431)[7]
36. Empathising with others	F 4: Care and Help (0.442) [8] (0.411)[7]	F 8: Pragmatics skills (0.679) [8] (0.583)[7] (Labelled as Pragmatics/Relational skills (F3) in the 7 factor model)
37. Validating and acknowledging others	F 4: Care and Help (0.451) [8] (0.427)[7]	F 8: Pragmatics (0.619) [8](0.556)[7] (Labelled as Pragmatics/Relational skills (F3) in the 7 factor model)
38. Showing interest in others during conversations	F 4: Caring and Help (0.512) [8] (0.467)[7]	F 8: Pragmatic Skills (0.505) [8] (0.400)[7] (Labelled as Pragmatics/Relational skills (F3) in the 7 factor model)
59. Understanding complex discussions, including technical subjects in own field and factual reports.	F 1: Receptive Language (0.454) [8] (0.446)[7]	F 7: Resolving (0.407) [8] (0.438) [7]
62. Understanding feedback received	F 1: Receptive Language (0.461)[8] (0.463)[7]	F 7: Resolving (0.452) [8] (0.474)7
65. Understanding conversational inferences	F 1: Receptive Language (0.453) [8] (0.444)[7]	F2: Higher Order (0.563) [8] (0.598) [7]

[7] Seven factor model

[8] Eight factor model

Table 14. Statistical Justification for Retaining Cross-Loading Items.

Item	Percentage of moderate to strong inter-item correlations	Percentage of residual correlations per model ($r \leq 0.05$)			Item means	Communalities		
		6 F	7 F	8 F		6 F	7 F	8 F
8	61.76% (42)	84.1% (58)	84.1% (58)	87.1 %(61)	4.00	0.494	0.494	0.495
19	70.59% (48)	91.3% (63)	91.3% (63)	91.4% (64)	4.25	0.591	0.591	0.591
36	33.82% (23)	82.6% (57)	82.6% (57)	85.7% (60)	4.11	0.557	0.557	0.677
37	67.65% (46)	82.6% (57)	82.6% (57)	87.1% (61)	4.23	0.648	0.649	0.722
38	48.53% (33)	79.7% (55)	81.2% (56)	87.1% (61)	4.17	0.534	0.546	0.656
59	72.06% (49)	81.2% (56)	81.2% (56)	81.4% (57)	4.14	0.590	0.599	0.599
62	73.53% (50)	85.5 % (59)	89.9% (62)	88.6% (62)	4.28	0.554	0.598	0.598
65	67.65% (46)	81.2% (56)	87% (60)	88.6% (62)	4.06	0.644	0.670	0.670

Cross-loading Item 58: Understanding routine work-related discussions, Item 60: Understanding familiar work-related messages and instructions, and Item 23: Joking/using humour, were selected for deletion as they cross-loaded onto conceptually "incorrect" factors, with almost identical primary and secondary loadings greater than 0.4 substantive level. Although, these items were deleted due to ambivalent and conceptually confounding loadings and cross-loading, only Item 23 demonstrated further statistical support for deletion, with a low percentage of moderate/strong inter-item correlations (13.24%), a comparatively lower mean of 3.83, and the lowest communality in the six factor model (0.478).

Post-Deletion EFA Model Fit Results

To determine optimal factor structure after deletion of Items 7, 14, 23, 58, and 60, the six, seven and eight factor EFA models were re-examined for model fit, number of item loadings per factor, pattern of rotated factor loadings, theoretical interpretability and variance explained by the model and individual factors. The resultant standardised model fit indices for the 64-item SOFCD scale are reported in (Table 12B).

64-Item Six Factor Structure

The 64--item six factor model reflected a slightly enhanced fit over the 69-item model, with an increased GFI (ULS) (0.958) and reduced percentage of residual correlations (29.71%), although the RMSP (0.121) increased marginally by 0.001, and the RMSR (0.052) remained constant (Table 12B). The number of moderate to strong substantive loadings (≥ 0.4) per factor, in the range of 0.40 to 0.854, were slightly less evenly distributed across factors (F1 = 10 items; F2 = 5 items; F3 = 13 items, F4 = 6 items, F5 =14 items, F6 = 6 items). In the 64-item model an equal number of items (3) failed to load onto the six factors (Items: 26, 27 and 28), and an increased number of items (7) cross-loaded (Items: 6, 10, 18, 19, 63, 64, and 65). The 69-item six factor model demonstrated a slightly improved theoretical interpretability, although the paralinguistic items: 52, 53, and 54 still loaded incorrectly onto Factor 1: Receptive Language, and Item 40: Standing up for oneself, continued to load erroneously onto Factor 6: Conversational repair. Additionally, expressive items 4 and 6 loaded incorrectly onto Factor 1, further clouding theoretical interpretability of the Factor 1: Receptive Language. The 64-item six factor solution accounted for a slightly increased overall percentage of the variance post-rotation (56.4 %), with the factors individually contributing similar amounts of variance (F1 = 10,4%, F2 =8.6%, F3 = 9.54% , F4 = 7.83%, F5 = 10.72%, F6 = 9.32%).

64-Item Seven Factor Structure

The 64-item seven factor model demonstrated an increased GFI (ULS) (0.962) relative to the 69-item model. However, relative to the 64--item six factor model the RMSP was identical (0.121), and the percentage of residuals was almost equivalent (29.02%) (Table 12B). The seven factor model demonstrated the same distribution of items per factor in the following: F1 = 8 items; F2 = 5 items; F3 = 10 items, F4 = 6 items, and F6 = 6 items, with F5 = 7 items, and F7 = 11 items. The 64-item model demonstrated similar moderate to strong factor loadings, in the range of 0.400 to 0.853, relative to the 69-item model. A reduced number of items (Items 27 and 59) failed to load onto the seven factors, and three less cross-loading items (9) were present (Items: 4, 6, 16, 36, 37, 38 63, 64, and 65). Relative to the 69-item seven factor model, the 64-item seven factor model demonstrated improved theoretical interpretability with only five theoretically incompatible item loadings. In both the six and seven factor models the paralinguistic items: 52, 53, 54, loaded incorrectly onto Factor 1: Receptive language, and item 40 loaded onto Factor 6: Conversational repair. Item 24: Networking, loaded

conceptually incorrectly onto Factor 7: Resolving. The 64-item seven factor model accounted for a slightly more accumulative variance of 58.93 %, with a similar distribution of variance across individual factors (F1 = 9.26 %; F2 = 7.92%; F3 = 8.62%, F4 = 7.27%, F5 = 8.04%, F6 = 8.33%, F7 = 9.50%).

64 Item Eight Factor Structure

The 64-item eight factor structure displayed the best fit relative to all previous models examined. Improvements in the model fit of the 64-item eight factor structure relative to the 69-item model were attributable to an increased GLS (ULS) (0.967), and a reduced percentage of residual correlations (24.9%) (Table 12B). The 69-item eight factor structure had a relatively similar distribution of primary factor loadings, with a large number of loadings on Factor 7: Expressive language (F1 = 6 items; F2 = 5 items; F3 = 3 items, F4 = 6 items, F5 = 6 items, F6 = 6 items, F7 = 11 items, F8 = 4 items). Only a single item (Item 27) failed to load onto the factors, and was deleted from further analysis. 16 items cross-loaded onto two factors (Items: 4, 6, 8, 24, 32, 33, 34, 36, 37, 38, 52, 53, 62, 63, 64, and 65). Further examination of the 16 cross-loadings revealed that 12 cross-loadings made clear conceptual sense. Furthermore, 4 cross-loadings displaying clear theoretically compatible primary loadings could be similarly conceptually interpreted as having theoretically compatible secondary loadings onto, Factor 1: Receptive language, as follows. Item 52: Speaking and pronouncing words clearly so that others can understand you (Factor 8: Relational skills), Item 4: Explaining simple facts, and Item 6: Giving clear instructions (Factor 7: Expressive Language), Item 53: Speaking fluently (Factor 8: Relational Skills), as well as a non-cross-loading item, Item 54: Using voice for emphases e.g. speed, pitch, volume, could all be conceptually justified as adapting language (clear speech/pronunciation, explaining, clarifying, fluency, and the use of paralinguistics) to facilitate the reception/understanding of a conversational partner (loading onto Factor 1: Receptive language) (Appendix 13, Table G). The 64-item eight factor structure accounted the largest of percentage variance post-rotation (61.26%), with an even distribution of variance accounted for by each factor (F1 = 8.43 %; F2 = 7.47 %; F3 = 7.47 %, F4 = 6.63 %, F5 = 7.48 %, F6 = 7.61 %, F7 = 8.62 %, F8 = 7.54 %).

Considering statistical model fit indices, distribution of item loadings on factors, non-loading and cross-loading items, and the conceptual interpretation of the factors, the 63-item eight factor EFA solution demonstrated the best fit, followed by the 64-item six factor EFA solution, and lastly the 64-item seven factor EFA solution.

Confirmatory Factor Analysis

A confirmatory factor analysis was undertaken to further investigate the fit of the 64-item six factor EFA solution, the 64-item seven factor EFA solution, and the 63-item eight factor EFA solution. In

the absence of multivariate normality of the data, the overall model fit was assessed using the Bollen-Stine corrected p-value, and individual parameter estimates were bootstrapped.

64-Item Six Factor Structure

The Bollen-Stine results indicated that across 1000 samples, the obtained bootstrapped chi-square value of 2442.542 was less than the chi-square value of 4440.4 under multivariate normality, which yielded a p-value of 0.001, indicating a poor model fit. The inter-factor correlations clustered around a mean correlation of 0.49, indicating a moderate and acceptable association between factors.

64- Item Seven Factor Structure

A poor model fit was indicated by a statistically significant Bollen-Stine statistic (p = 0.001), which indicated that the obtained chi-square value of 2607.60 was less than the multivariate normal chi-squared value of 4623.48 (across 1000 samples).

63-Item Eight Factor Structure

In terms of the Bollen-Stine statistic, a comparison of the obtained bootstrapped chi-square 2695.17, and the value expected under multivariate normality 4691.976 (across 1000 samples), resulted in a statistically significant p-value of 0.001 suggesting a poor model fit. Moderate inter-factor correlations clustered around a mean correlation of 0.46.

In light of the relatively good EFA fit statistics, the incongruous Bollen-Stine results of poor model fit should be interpreted with caution. Research has cautioned against blind adherence to bootstrapping, which is largely unsupported by empirical underlying simulation studies critically evaluating the accuracy of bootstrapping under various experimental conditions. Consequently, there is a lack of guidelines for (1) the minimum sample size required of the original parent sample, and (2) the appropriate number of bootstrapped samples required for accurate results (Nevitt & Hancock, 2001).

The 63-item eight factor model (referred to as the new SOFCD) was selected for further psychometric analysis as it offered the best EFA fit statistics (Table 12B), a relatively even distribution of primary factor loading across the factors, with a single non-loading item, and no theoretically incompatible item cross-loadings, an even distribution of variance across factors, the most conceptually interpretable pattern of factor loadings, and moderate inter-factor correlations (Appendix 14, Table H).

Psychometric Properties of the 63-Item Eight Factor New SOFCD Scale

Research Question 3*:* Does the new SOFCD capture unique or common aspects of verbal-workplace communication skills relative to other related measures of workplace communicative and relational competence?

Convergent Validity

Convergent construct validity of the 63-item eight factor new SOFCD was examined by conducting boot-strapped inter-factor correlations between the eight new SOFCD factors, and the factor structure of two related measures, the CCQ, measuring workplace communication competence (underlying factors: Encoding and Decoding (Monge, Bachman, Dillard, & Eisenberg, 1982)), and the RCS, measuring relational communication skills (underlying factors: Other-orientation, Conversational skills, and Self-centered behaviour (Spitzberg, 1988)).

Descriptive Statistics and Reliability of the Related Scales

The descriptive statistics and reliability of the RCS and CCQ are presented in Table 15. Univariate non-normality of the RCS at a factor/subscale and item level was indicated by: (1) negatively skewed and abnormal kurtotic item distributions, (2) significant Shapiro-Wilk test results for each factor and item, and (3) 52% (13) of the item mean scores were over 1 standard deviation above the response scale midpoint of "3", indicating negatively skewed responses. Thus, the presented communication items (within other-orientation, conversational skills, and self-centered behaviour) were positively self-evaluated by respondents as occurring within a recent conversation.

An analysis of the internal consistency reliability of the RCS factors indicated "good" reliability of the other orientation (α =0.848; θ =0.856) and conversational skills (α = 0.856; θ = 0.860) factors, and "acceptable" reliability of the Self-centred behaviour (α = 0.675; θ = 0.677) factor. Similarly, the CCQ demonstrated univariate non-normality at a factor and item level, with abnormal factor skewness and kurtosis indices (Encoding: -0.688, 1.255, and Decoding: -1.578, 4.270), significant Shapiro-Wilk test results, and 80% (8) of the item mean scores were one standard deviation above the response scale mid-point of "4". Thus, respondents either "mildly agreed" or "strongly agreed" that the items reflected their communicative competence in general. Both CCQ subscales presented with "good" internal consistency reliability (Encoding: α = 0.759; θ = 0.776 and Decoding: α = 0.711; θ = 0.717).

Table 15. Descriptive Statistics and Reliability of the Related Scales: The CCQ and RCS Scales

Scale	Number of Items	Min, Max	*M* (*SD*)	Skewness (*SE* = 0.140)	Kurtosis (SE = 0.279)	Shapiro-Wilk *W*	Cronbach's ordinal alpha α	Cronbach's ordinal theta θ
RCS								
Other orientation	13	20, 65	54.27(6.81)	-0.835	1.558	0.956	0.848	0.856
RCS 1		1, 5	4.26 (1.073)	-1.617	1.911	0.701		
RCS 3		1, 5	4.14 (0.904)	-1.184	1.466	0.797		
RCS 4		1, 5	4.11 (0.940)	-1.159	1.355	0.805		
RCS 6		1, 5	4.29(0.923)	-1.624	2.746	0.729		
RCS 7		1, 5	4.30(0.879)	-1.642	3.263	0.733		
RCS 8		1, 5	4.44 (0.817)	-2.070	5.296	0.682		
RCS 9		1, 5	3.96(1.312)	-0.987	-0.348	0.767		
RCS 10		1, 5	3.91(1.285)	-0.883	-0.494	0.793		
RCS 14		1, 5	4.11(1.208)	-1.332	0.716	0.736		
RCS 22		1, 5	4.49 (0.753)	-2.033	5.650	0.660		
RCS 23		1, 5	3.92 (1.206)	-0.981	-0.057	0.809		
RCS 24		1, 5	4.24(0.935)	-1.576	2.728	0.746		
RCS 25		1, 5	4.11(1.015)	-1.389	1.673	0.768		
Conversational skills	9	14, 45	36.69(5.68)	-0.646	0.122	0.957	0.856	0.860
RCS 2		1, 5	4.33 (0.924)	-1.741	3.087	0.706		
RCS 11		1, 5	4.07(0.922)	-1.003	0.909	0.822		
RCS 12		1, 5	4.33 (0.892)	-1.662	2.994	0.729		
RCS 5		1, 5	4.17(0.900)	-1.244	1.641	0.791		
RCS 13		1, 5	3.53 (1.375)	-0.422	-1.160	0.857		
RCS 15		1, 5	4.13(1.198)	-1.270	0.488	0.735		
RCS 16		1, 5	3.91(1.032)	-1.096	1.086	0.823		
RCS 19		1, 5	4.06(1.211)	-1.063	-0.136	0.757		
RCS 21		1, 5	4.17 (0.934)	-1.423	2.205	0.769		
Self-centred behaviour	3	3, 15	11.75 (2.72)	-0.801	0.316	0.920	0.675	0.677
RCS 17		1, 5	3.81(1.178)	-0.760	-0.347	0.850		
RCS 18		1, 5	4.07(1.213)	-1.170	0.244	0.757		
RCS 20		1, 5	3.87 (1.297)	-0.819	-0.664	0.798		
CCQ								
Encoding	6	10, 42	33.78 (4.93)	-0.688	1.255	0.966	0.759	0.776
CCQ 1		1, 7	6.18(1.212)	-2.061	4.904	0.696		
CCQ 3		1, 7	5.58 (1.365)	-1.000	0.808	0.856		
CCQ 5		1, 7	5.98 (0.964)	-1.135	2.500	0.831		
CCQ 7		1, 7	5.96 (1.079)	-1.273	2.164	0.820		
CCQ 8		1, 7	5.05 (1.917)	-0.612	-1.002	0.853		
CCQ 9		1, 7	5.03 (1.385)	-0.586	-0.069	0.922		
Decoding	4	8, 28	24.40(3.13)	-1.578	4.270	0.873	0.711	0.717
CCQ 2		1, 7	5.87(1.281)	-1.523	2.622	0.796		
CCQ 4		1, 7	6.19 (1.066)	-2.126	6.327	0.715		
CCQ 6		1, 7	6.21(1.075)	-2.106	6.107	0.713		
CCQ 10		1, 7	6.14(1.173)	-1.644	2.675	0.742		

Note. All Shapiro-Wilk values were significant at α = 0.05

Convergent Validity: Inter-Scale Correlations

Evidence of convergent validity of the new SOFCD scale was provided by significant and positive correlations between the new SOFCD and RCS factors, and, the new SOFCD and CCQ factors (Table 16). As expected, the new SOFCD scale tended to have lower correlations with the RCS factors,

which measured only relational skills (*r* ranged from 0.042 to 0.465), than with the CCQ scale, measuring a wider range of workplace communication skills (*r* ranged from 0.154 to 0.567). A conceptual overlap of about 12% (*r* = 0.345) between the RCS: Other orientation and the new SOFCD scale was attributable to shared Relational Skill content. Furthermore, when taken together, the conceptual overlap between RCS: Other orientation and the remaining SOFCD factors provided additional evidence of convergent validity: Caring/Help (6.7%), Pragmatic Skills (6.66%), Resolving (6.55%), Expressive Language (6.3%), and Receptive Language (5.86%). The greatest percentage of conceptual overlap between the RCS: Conversational skills factor and the SOFCD was in Expressive Language (21.62%) and Relational Skills (21.62%), reflecting a common conceptual focus on expressive inter-personal communication skills (e.g. RCS Item 16: I was an effective conversationalist). The Conversational Skills factor demonstrated further convergent validity, to a lesser degree, with Receptive Language (12.67%), Resolving (10.37%), Conversational Repair (6.55%), and Caring/Help (4.67%). The third factor of the RCS scale: Self-centred behaviour was significantly, but weakly negatively correlated with three of the SOFCD factors: Resolving, Expressive Language, and Relational Skills, demonstrating a reduced degree of conceptual overlap, 10.56%, 5.43%, and 6.05%, respectively.

CCQ factors were more strongly correlated with all eight SOFCD factors. Although a high degree of conceptual overlap between Encoding and Expressive Language (24.6%) could be anticipated (.e.g. CCQ Item 7: I express my ideas clearly), the similar conceptual overlap with Relational skills (32.15%) and Receptive Language (22.18%) was less conceptually expected. Convergent validity was further validated by relatively high overlap percentages with: Conversational repair (12.67%), Pragmatics (12.25%), Caring/Help (12.18%), and Resolving (10.11%). As anticipated, Decoding demonstrated high degrees of conceptual overlapped with Relational skills (24.5%), Pragmatic Skills (23.52%), and Receptive Language (19.27%). This is due to the CCQ decoding items measuring essentially the same concepts represented in the corresponding SOFCD factors. For example, CCQ Item 6: I am a good listener, directly relates to Receptive Language. Additionally, Decoding overlapped with Expressive Language (13.4%) and Caring/Help (13.18%), and to a lesser extent with Conversational Repair (8.35%) and Resolving (8.2%).

Discriminant validly was supported by low and non-significant correlations between the RCS factors and the CCQ factors, and the SOFCD: Higher Order Language factor (Table 16). The RCS subscales demonstrated weak non-significant correlations with Higher Order Language (Other orientation (*r* = 0.042), Conversational skills (*r* = 0.056), and Self-centred behaviour (*r* = -0.022)). Furthermore, the CCQ subscales demonstrated significant but weak correlations with Higher Order Language (Encoding (*r* = 0.192) and Decoding (*r* = 0.154). These correlations validate the SOFCD's discriminant validity in tapping into a different aspect of workplace communication skills, Higher

Order Language (e.g. Item 69, 66: Understanding metaphors, similes, idioms, and cultural norms). The SOFCD inter-factor correlations (Appendix 14. Table H) demonstrated moderate significant inter-factor correlations between the Receptive and Relational Skills factor and the remaining SOFCD factors; Expressive Language, and Resolving and Repair; and Pragmatics and Caring/Help, indicating the anticipated relatedness of these constructs. The remaining weak, significant inter-factor correlations provided evidence of the distinctness of the Repair, Resolving, Pragmatics, Higher order, and Caring/Help factors.

Table 16. Boot-Strapped Inter-Factor Correlations between the RCS and CCQ, and SOFCD Factors

	63 Item Eight Factor SOFCD Scale							
	Receptive	Higher order	Pragmatics	Caring/ Help	Resolving	Repair	Expressive	Relational skills
RCS Scale								
Other orientation	0.242*	0.042	0.258*	0.259*	0.256*	0.141	0.251*	0.345*
Conversational skills	0.356*	0.056	0.204*	0.216*	0.322*	0.258*	0.465*	0.465*
Self-centred behaviour	-0.147	-0.022	-0.082	-0.039	-0.325*	-0.064	-0.233*	-0.246*
CCQ Scale								
Encoding	0.471*	0.192*	0.350*	0.349*	0.318*	0.356*	0.496*	0.567*
Decoding	0.439*	0.154*	0.485*	0.363*	0.288*	0.289*	0.366*	0.495*

* $p < 0.05$

Internal Consistency Reliability

To assess internal consistency reliability, Ordinal coefficient alpha and theta were computed for the overall SOFCD, and each sub-scale, as they are reported to produce accurate estimates of reliability for ordinal data, regardless of skewness and the number of Likert response categories. (Zumbo, Gadermann, & Zeisser, 2007).

The overall scale demonstrated excellent internal consistency reliability ($\alpha = 0.969$, $\theta = 0.970$). These high levels of internal consistency reliability could indicate some item redundancy (Table 17). However, a high level of internal consistency reliability for the broad construct of workplace communication is anticipated due to the theoretical conceptual overlap between subscales, necessary in assessing this complex multifaceted construct (e.g. Conversational Repair is conceptually related to Pragmatics, Relational Skills, as well as Expressive Language). "Good" levels of internal consistency reliability across the subscales indicated internally consistency or relatedness of the items in measuring narrower unique facets of workplace communication (Table 17). The almost identical ordinal coefficients alpha and theta values, verified the accuracy of these coefficients in the presence of non-normal data (Table 17). An examination of the "Ordinal coefficient alpha/theta if item deleted" tables supported the retention of all items, as there were only 4 items which predicted marginal increases in reliability, if deleted.

Table 17. Internal Consistency Reliability of the SOFCD

Sub-scale	**Ordinal coefficient alpha (α)**	**Ordinal coefficient theta (θ)**
Relational skills	0.865	0.867
Higher order Language	0.865	0.871
Pragmatics	0.893	0.894
Caring/Help	0.821	0.826
Resolving	0.847	0.850
Conversational Repair	0.877	0.879
Expressive Language	0.920	0.921
Receptive Language	0.914	0.914
Overall SOFCD	0.969	0.970

CHAPTER 5

DISCUSSION

INTRODUCTION

The aim of this study was to develop an instrument to measure verbal workplace communication competence based on an alternative conceptualisation of workplace communication as observable (behavioural, verbal), functional, molecular level, task/work-related communication skills, embedded within social interaction, on a continuum of communicative competence, within South African organisations. The research was conducted in two phases. In Phase 1: Preliminary Scale Development the scale was constructed through item sampling, and item reduction by frequency analysis, modification and rewording within a pilot study. Phase 2: Final Scale Administration focused on evaluating the factor dimensionality of the SOFCD and the psychometric reliability and validity of the scale. Findings related to these two phases and the research questions contained within the phases will be discussed.

DISCUSSION OF RESEARCH FINDINGS

Phase 1: Preliminary Scale Development

Item Sampling

A unique process of initial scale construction, used in this study, generated a substantial item pool of 490 items, from existing workplace communication instruments, inventories and descriptors of workplace communication skills originating from a wide range of organisational, speech pathology and communication literature and web-data bases. Previous communication scale development research is often compromised by inadequate or restricted item sampling, for example, sampling from a narrow range of resources (e.g. Keyton, et al., 2013), or sampling focused on only a few dimensions of communicative competence (e.g. empathy, adaptability, and interaction management (Payne, 2005)).

The conceptual foundational assumptions of the current research and allied scale development research (i.e. Keyton, et al. (2013), and Payne (2005)) drew on Spitzberg and Cupbach's relational model. However, Spitzberg and Cupbach's relational model was differentially applied, as either a heuristic for item in/exclusions, or item sampling was restricted to the

three communicative competence categories, Knowledge, skills and motivation (Cupach & Spitzberg, 1981).

The multidimensional representation of workplace communication skills was ensured through firstly, qualitatively categorising sampled items on the basis of similar content. Secondly, category definitions/ inclusion criteria were developed from diverse theoretical orientations (e.g. Speech Pathology, Linguistic theory, organisational and relational communication literature). Thirdly, adequate item representation within 20 subcategories was ensured through an iterative process of augmenting subcategories by focused literature searches, and generating reciprocal skills. Previous studies have omitted this iterative qualitative categorisation process, thus, not adequately accounting for item representation across all possible subcategories of workplace communication. Item pruning, by removing semantically overlapping and synonymous items, reduced the 490 items to 139 items.

Pilot Study

In answering ***Research Question 1****:* What are the most frequently occurring verbal workplace communication skills in the South African (SA) organisational context, the current study used a frequency analysis to reduce 139 items, identified in literature as workplace communication skills, to 119 workplace communication skills, reported as routinely occurring in SA workplaces. Item reduction by frequency ensured that the retained communication items were truly representative of workplace communication behaviours occurring routinely across SA workplaces. Additionally, few significant associations between respondents' personal and workplace demographic characteristics and response frequencies limited the influence of these variables on the construct validity of items. Item reduction by frequency was similarly employed using a sample of American employees in Workplace Communication Behavioural Inventory development (Keyton, et al., 2013), and yielded differences in the routinely observed workplace communication behaviours, relative to the South African sample. Overall higher response frequencies were reported within the SA sample (46% of communication items were reported as occurring routinely by 80% to 100% of respondents), while within the American sample response frequencies did not exceed 85 %. The top 20 workplace communication behaviours reported by between 62.7% to 84.13% of American respondents focused on routinely occurring Expressive language items, although "Listening", a Receptive language skill, was reported as the top item by the largest percentage (84.13%) of these respondents. In contrast, the highest frequency (86.7% to 100%) of SA respondents regarded Receptive

language skills, followed by Pragmatic and Relational skills, as predominating within the top 20 routinely occurring workplace communication behaviours. The most parsimonious explanation for the SA focus on Pragmatic and Relational skills is that they reflect more collectivistic orientations within SA organisations, while USA organisations have more Eurocentric individualistic orientations (Booysen, 2001). In Keyton et al. (2013) cognitive skills, incongruent with the conceptual foundational assumptions (i.e. verbal. observable workplace communication behaviours), were included in the frequency analysis. Less than 50% of respondents in the SA sample reported observing/hearing communication skills falling within the Leading/ Leadership Skills and Formal presentation categories. This could be explained by limited representation of management level jobs, requiring these communication skills. In contrast to Keyton et al. (2013), item-modification (i.e. eliminating semantically redundant items, items reflecting a value judgement, and the rewording of items) was undertaken only after the frequency analysis to preserve the construct validity of the items presented for frequency analysis. Additionally, the relevancy and appropriateness of the final 69 items for measuring workplace communication skills across a demographically diverse sample, was validated by two subject matter experts (SME).

Phase 2: Final scale administration

Response rates, Sample characteristics and Descriptive item statistics

The data from the final administration of the 69 item workplace communication scale to 303 participants was used to investigate the factor structure of the measure. Factor analysis was under taken to yield a more robust measure of verbal workplace communication skills, and additionally, reflected SA employees' perceptions of pertinent subcategories of workplace communication, across job types and employment sectors. The sample representativeness was ensured as 79.5% of the sample were employed fulltime (M = 5.84 years job experience), in both non/professional jobs, across 30 distinct economic sectors, representing all SASCO skill-level occupational groups (SASCO, 2002). Additionally, all SA race and language groups, and education levels were represented within the sample. Furthermore, a relatively high response rate and percentage of retained questionnaires (i.e. those meeting the retention criteria) resulted in 303 responses, sufficiently large for exploratory (EFA) and confirmatory (CFA) factor analysis. The factorability of the data was statistically confirmed by the KMO, Bartlett’s test, Steiger's test, and Jennrich's test. Additionally, inter-item correlations indicated limited redundancy and multicollinearity (i.e. no correlations greater than r = 0.9).

Prior to EFA analysis, descriptive statistics indicated univariate non- normality at an item level. Respondents' ratings on 35 items were negatively skewed (-1.006 to -1.789) with 40 items demonstrating abnormal kurtotic item distributions (1.007 to 3.826). Additionally, Mardia's coefficient of multivariate kurtosis = 1343.297, greatly exceeded the normality cut-off value (1.96). Respondents' general tendency to evaluate the level of communicative competence required by their jobs as either "Good" or "Excellent" in 78.26% of presented items (over 1 standard deviation above the midpoint range of "3") would seem to indicate the need for a high level of competence in a core set of communication skills, across SA jobs and employment sectors, rather than a response set.

Factor Extraction

In answering ***Research Question 2****:* What is the underlying factor structure of the SOFCD verbal-workplace communication skill items, a robust factor analytic approach was used to reveal the underlying latent structure of the scale items, offering advantages over alternative factor analytic research methods. Firstly, in addition to traditional factor extraction methods: Kaiser's criterion, the scree plot (a traditional graphical method), and the Acceleration Factor method (a non-graphical solution), this research used four modern methods reported as offering more accurate and unbiased estimations of dimensionally in previous research: Parallel analysis, the Optimal coordinate method, MAPr^2 and Very simple structure (Ruscio & Roche, 2012). Secondly, two sets of EFAs (pre- and post item deletion) were conducted to differentiate the model fit results of the three competing models. The competing models were evaluated on six criteria which included fit statistics and alternative indices of fit (i.e. residual correlations, loading per items, non-loadings, cross-loadings, theoretical interpretability, and distribution of variance across factors). Thirdly, potential items for deletion were considered individually according to the factor loading pattern (e.g. similar primary and secondary loadings) and conceptual interpretability, and only common non-loading and cross-loading items across all three models, or in some cases across two models, were deleted. Fourthly, a CFA was conducted on the remaining two completing models to further differentiate model fit.

A probable six, seven, and eight factor solution was suggested by the convergence of four modern factor extraction methods, as follows: Parallel analysis (6 factors), Optimal Coordinate (6 factors), MAPr2 (8 factors), and VSS (7 factors), and the six, seven, and eight factor models accounted for more than 50% of the total common variance: 55.37%, 57.86%, and 60.28% respectively.

Discussion of Pre-deletion EFA Model Fit Results

The 69-item pre-deletion EFA results indicted that although all three competing models demonstrated satisfactory to excellent statistical model fit indices, the six and eight factor model solutions demonstrated enhanced model fit in terms of relatively fewer non-loadings and cross-loadings, less theoretical conceptual incongruity of primary factor loadings, more equally distributed variance across individual factors, and marginally stronger factor loadings, relative to the seven factor solution. A set of six factors were labelled according to common item content, and were consistently represented across the three competing models: Receptive Language, Expressive Language, Higher Order language, Caring and Help, Pragmatic/Relational Skills, and Conversational Repair. Within the six and seven factor solutions, items relating to pragmatic and relational communication skills loaded onto a single undifferentiated factor, Pragmatic/Relational Skills, which were further differentiated into two distinct factors within the eight factor solution. An additional factor, Resolving, emerged within the seven factor solution and was present in the eight factor solution.

Discussion of Post-deletion EFA and CFA Model Fit Results

The deletion of common non-loading items (Items 7 and 14) and common conceptually incongruent cross-loading items (Items 58, 60, and 23) resulted in a overall improved statistical model fit across the 64-item six, seven and eight factor EFA solutions, relative to the 69-item EFA fit statistics.

Comparisons of non-loading items, incorrect primary loadings, and conceptually un-interpretable cross-loadings, across the three completing models clearly differentiated the superior model fit of the eight factor solution. Firstly, in terms of substantively non-loading items (i.e. item loadings < 0.4), the six and seven factor solutions displayed three and two non-loading items, respectively (six factor model: Items 26, 27, and 28; seven factor model: Items 27 and 59), relative to the single non-loading item 27 in the eight factor solution. Across the three models, Item 27 (Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers (Smalltalk)) loaded onto all of the factors with the highest non-substantive loadings on the following factors: Higher order language, Pragmatics/ Relational Skills and Caring and Help. Secondly, within the eight factor solution all items loaded "correctly" (i.e. conceptually congruently) onto their factors, while across the six and seven factor solutions four items loaded "incorrectly" onto factors. Thirdly, a large number of cross-loadings in the eight factor solution were misleading as they were

explainable in terms of the conceptually predictable overlap in multidimensionality of cross-loading items (e.g. Item 36: Empathising with others is conceptually related to both Factor 3: Pragmatics and Factor 4: Caring and Help).Thus, the eight factor solution demonstrated four conceptually un-interpretable cross-loadings, comparable with the three un-interpretable cross-loadings in the six and seven factor model. Additionally, the eight factor solution accounted for 61.26% of the post-rotation variance, which was relatively equitability distributed across the eight factors (range = 6.63 % (F4) to 8.62 % (F7)), when compared with the competing models (Six factor model (56.4%): range 7.83% (F4) to 10.72% (F5), and the seven factor model (58.93%): range 9.50% (F7) to 7.27% (F4)).

Although the inconclusive CFA Bollen-Stine fit statistics across competing solutions failed to provide further support for the eight factor model, the optimal EFA fit statistics and alternative fit indices confirmed the structural soundness of the eight factor model. The following final set of eight distinct extracted factors, provided a basis for evaluating the parameters of communicative competence required across South African sectors and jobs: Expressive Language, Receptive Language, Higher Order language, Pragmatic Skills, Caring and Help, Resolving Skills, Conversational Repair, and Relational Skills.

The 63-Item Eight Factor Solution

In the following discussion the conceptual parameters of the eight factors will be delineated. Secondly, the discussion will focus on item level comparisons with the Workplace Communication Behaviour Inventory (Keyton, et al., 2013), due to a similar conceptualisation of verbal workplace communication skills, as well as comparisons with the original workplace communication conceptualisations (Phase 1), and related relational and workplace communication scales.

Although the items selected by respondents within *Factor 1: Receptive Language* adhered to the first-order workplace communication conceptualisations under the second-order conceptualisation: Reception, respondents indicated a broader conceptualisation of Receptive communicative competence required in: Listening, Comprehension and Interpreting subcategories. Items in Listening included: listening with full attention (Item 55), active listening (Item 56), and listening for main ideas (Item 57). The Workplace Communication Behaviour Inventory (Keyton, et al., 2013) confirmed Listening (Item 19) within the Information sharing factor. Understanding or Comprehending encompassed understanding

both simple and complex information (e.g. feedback received (Item 62), as well as technical subjects within own field (Item 59) and long verbal instructions (Item 61)). Furthermore, beyond understanding the content of messages, SA respondents expressed the need to understand Higher Order Language (e.g. communicative intent, differences in style and register, Items 63 and 64) in the workplace. This unique finding broadens the conceptualisation of competence in verbal workplace communication skills, and could be explained by differences in cultural knowledge within SA, which may result in limitations in the number of potential sociolinguistic interpretations of a communication intention (Zegarac, 2007). Articulating clearly (Item 52), using voice for emphasis (Item 54), within Factor 1: Receptive Language, could be conceptualised as facilitating a conversational partner's receptive understanding.

SA respondents indicated requiring communicative competence in a unique factor, *Factor 2: Higher Order Language* (the understanding of abstract and inferential language), in SA workplaces. Higher Order Language included, understanding humour (Item 68), sarcasm (Item 67), figures of speech (Item 69), inference (Item 65), inter-cultural norms (Item 66), and appropriate self disclosure (Item 39). Although Higher Order Language items were represented within the original SOFCD scale, they remained undifferentiated from the general Reception category. Only a single aspect of Higher Order Language, humour, was represented within the Relational Maintenance subscale of the Workplace Communication Behaviour Inventory (Keyton, et al., 2013).

The current study offers a unique divergent conceptualisation of interpersonal workplace communication, differentiated into three distinct factors: *Factor 3: Pragmatic Skills*, *Factor 4: Caring and Help*, and *Factor 8: Relational Skills*, with some conceptual overlap indicated by theoretically interpretable item cross-loadings. Although, Pragmatic Skills included conceptually similar items to the RCS factor, Other Orientation, (e.g. sensitivity to the feelings of others, empathy, validation, acknowledgement and interest in conversational partners, Items 30, 36, 37, and 38), SA respondents expanded on the conceptualisation of pragmatic skills to include phatic utterances (Items 32 and 33), and cross-cultural interactional pragmatics (Item 31). Intercultural communication research emphasises the importance of cross-cultural pragmatics in interdependent intercultural workplaces, and proposes that interactional sociolinguistics is more strongly influenced by pragmatics, leading to potential miscommunication, rather than by micro-ethnographics (Schiffrin, 2006). Furthermore, in SA

workplaces it is suggested that repeated intercultural miscommunication generates negative cultural stereotypes, which form barriers to intercultural communication, maintain social barriers and in-equities, and make it difficult for people to learn about another's pragmatic conventions (Chick, 2006). Within the Relational skills factor SA respondents indicated requiring communicative competence in speaking fluently (Item 53), and conveying confidence (Item 35), which was conceptually comparable to the RCS factor, Conversational skills (i.e. assertiveness, confidence, and clear expression). Beyond expressive competence, SA respondents indicated the need for the following broader relational communication skills. Establishing and maintaining constructive cooperative working relationships, and networking (Item 20, 21 and 24) was supported within the Workplace Communication Behaviour Inventory (Keyton, et al., 2013) factor: Relational Maintenance. However, SA respondents did not conceptualise relational skills as encompassing small talk, humour and narrative as in the Workplace Communication Behaviour Inventory Relational Maintenance factor (Keyton, et al., 2013). Building trust (Item 22) was supported by the RCS, Other-Orientation factor item, being trustworthy. Unique to this study was SA respondents' differentiation of a distinct relational factor: Caring and Help, which encompassed offering/providing/requesting personal assistance and care, emotional support, guidance/advice, supervisory help (Items 46, 47, 48, and 49), teaching/coaching /mentoring (Items 51), and consulting co-workers (Item 50).

Factor 5: Resolving skills were perceived by respondents as important to competent communication in SA workplaces, and encompassed the resolution of problems, conflicts, customer/client and line manager complaints (Items 10, 25, and 26), as well as requesting/providing feedback and verification (Items 11, 12, and 13). Item-level conceptual congruence within the Workplace Communication Behaviour Inventory items supported these findings, however, SA respondents conceptualised the six resolving communication behaviours as a single factor, Resolving skills, while respondents in Keyton et al. (2013) conceptualised similar items, seeking approval and resolving problems, as Organising, and requesting/giving/receiving feedback as Information Sharing.

Factor 6: Conversational Repair, was represented by specific communication strategies for requesting/providing conversational clarification (i.e. verifying, repeating, paraphrasing, rephrasing and explaining, Items 40, 41, 42, 43, 44, and 45), and adhered to the first-order workplace communication conceptualisation.

Factor 7: Expressive Language was somewhat reflective of the original SOFCD Expressive conceptualisation. Respondents indicated requiring communicative competence in 14 Expressive Language items across SA workplaces. The selected items included a combination of seven of the first-order conceptualisations: Information exchange items (transactional communication, which included conveying information and instructions to others, requesting specific information, and, asking and answering questions, Items: 1, 6, 18, and 19), Explaining (at a simple and complex level, Items: 4 and 5), Discussing (including initiating and participating in open discussion, requesting, expressing, and exchanging opinions/ideas, Items: 2, 3, 15, 16, and 17), and Influencing (raising doubts, getting one's point across, and persuading others to consider different opinions, Items: 8, 9, and 28). Items within the SOFCD Expressive Language factor were synonymous with the following items in the Workplace Communication Behaviour Inventory: Information Sharing factor (Keyton, et al., 2013): Explaining (Item 17), Discussing (asking for opinions, Item 29, and 34), Information exchange (Seeking, sharing, and evaluating information, asking and answering questions, and instructing, Items 23, 32, 37, 41, and 43), and Influencing (suggesting, Item 33). Although Formal presentation, Verifying and feedback (seeking, giving and receiving feedback), and Leading/leadership skills, were commonly represented in both the second-order conceptualisation , Expressive lanaguge (Phase 1), as well as in the Workplace Communication Behaviour Inventory: Information Sharing factor (Keyton, et al., 2013), they were not represented within the new SOFCD: Expressive Language factor. Furthermore, the Workplace Communication Behaviour Inventory: Information Sharing items, included molar skills, cognitive skills and attitudes (e.g. problem solving, cooperating, showing respect, and, evaluating information) beyond the conceptualisation of verbal workplace communication skills.

Thus, the eight factors of the SOFCD suggest greater dimensionality of workplace communicative competence in the SA context.

The Psychometric Properties of the 63-Item Eight Factor New SOFCD Scale

The final ***Research Question 3*** aimed to assess whether the new SOFCD scale captured aspects of verbal workplace communication skills that differ from other related measures of workplace communicative and relational competence. Inter-factor convergent validity correlations were conducted to examine the relationship between respondent's ratings on the new SOFCD and ratings on the RCS and CCQ, taken on the same day. The RCS and CCQ were assessed from a self-report perspective, while the SOFCD was self reported from an

other-referent perspective. In agreement with previous communication scale-development research, the adapted RCS factors: Other-orientation, Self-centred behaviour, and Conversational skills, and the adapted CCQ factors: Encoding and Decoding offered consistent moderate to high internal consistency reliability.

Validity Analysis

Some evidence of convergent validity in significant, but weak positive inter-factor correlations between the RCS factors and the new SOFCD factors was further validated in an evaluation of the underlying conceptual congruity supporting these correlations. The relatively high correlation between the RCS: Other Orientation, and the SOFCD: Relational Skills factor, may stem from their general common emphasis on altercentrism, as a precursor to establishing and maintaining co-operative workplace interpersonal relationships, including building trust. The RCS: Self-Centred Behaviour factor, the antithesis of altercentrism, could similarly negatively influence establishing/maintaining relationships within the SOFCD: Relational Skills factor, accounting for this moderate negative inter-factor correlation. The negative correlation between Self-Centred behaviour (RCS factor) and Resolving (SOFCD factor) could be anticipated, as centring on a conversational partner is required in conflict resolution and mediation.

The CCQ: Encoding factor was moderately correlated across seven SOFCD factors: Relational Skills, Expressive Language, Receptive Language, Conversational Repair, Pragmatic Skills, Caring and Help, and Resolving. The broad conceptualisation of Encoding as the quality of expressive language in terms of: language proficiency, succinctness, clarity and understandability of expression, conflict resolution, and pragmatic appropriateness, might explain why Encoding converged with each of the aforementioned distinct SOFCD communication competencies. The CCQ: Decoding factor was conceptualised as the quality of receptiveness, and was moderately correlated with five SOFCD factors. Decoding encompassed active listening, attentiveness, approachability, and empathy, and was thus conceptually synonymous with the SOFCD: Receptive Language factor. Additionally, Decoding might support the establishment and maintenance of interpersonal relationships, thus accounting for the moderate correlation with the SOFCD: Relational Skills factor. Furthermore, Decoding shared a common emphasis with Pragmatic Skills in terms of social perceptiveness, attentiveness and empathy, and Caring and Help, in terms of sensitivity to the needs of others. The moderate correlation between the CCQ: Decoding factor and the

SOFCD: Expressive Language factor could not be conceptually explained. The correlations between the CCQ: Encoding and Decoding factors and the SOFCD factors might suggest the presence of two underlying factors, namely, Encoding and Decoding.

However, the following two facts provide evidence for the SOFCD factors as distinct, but complementary dimensions, of verbal workplace communication skills. Firstly, discriminant validity was evident in weak, significant inter-factor correlations between the Repair, Resolving, Pragmatics, Higher order, and Caring/Help factors. Secondly, the following weak inter-factor correlations support distinct communication factors: CCQ: Encoding/Decoding and SOFCD: Higher Order language, and CCQ: Decoding and SOFCD: Resolving and Conversational Repair. Discriminant validity of the SOFCD was further demonstrated by low and non-significant correlations between the RCS factors and the CCQ factors, and the SOFCD: Higher Order Language factor. The moderate significant inter-factor correlations between the Receptive and Relational skills factor, and the remaining SOFCD factors, are anticipated as Receptive language and Relational skills form the foundation of the SOFCD factors (e.g. Conversational Repair, Resolving, Pragmatic Language, Higher Order Language and providing Caring/Help). Likewise, Expressive language is essential to Resolving and conversational Repair, and Caring/Help is facilitated by social Pragmatic language.

This suggests that the SOFCD measures a unique alternative dimension of workplace communication skills, and a broader scope relative to existing workplace communication scales. Thus, SA respondents indicate requiring competence in Higher Order language (i.e. Understanding metaphors, similes, idioms, and cultural norms) in SA workplaces.

Reliability Analysis

The overall SOFCD and subscale internal consistency reliability was high, and relatively robust to the non-normal data distribution (ordinal coefficient alpha and theta were almost identical for each subscale). High internal consistency reliability could be suggestive of item redundancy, however, the conceptual cross-loading of items, across subscales, was considered necessary in capturing the multi-faceted nature of verbal workplace communication items. Thus, the high subscale internal consistency reliability suggested the relatedness of the items in measuring narrower distinctive facets of workplace communication. Furthermore, Keyton et al.'s (2013) Workplace Communication Behaviour

Inventory demonstrated similar high internal consistency reliability in the range of 0.73 to 0.95.

CHAPTER 6

CONCLUSION

IMPLICATIONS

The findings of Phase 1 provide support for frequently occurring verbal workplace communication skills which appeared to be commonplace across a wide range of SA employment sectors, qualification levels, racial demographics and home languages, in mainly full-time employees with tenure of approximately six years. Phase 2 established an eight factor structural framework for the scale, and provided evidence of the scale's content, structural, convergent, and discriminant validity, and reliability. Additionally, in Phase 2 the structural validity of the scale was ensured by the deletion of poor items across competing models, which resulted in an enhanced the model fit of the eight factor 63- item solution. This study makes a unique contribution to existing workplace communication research by re-conceptualizing workplace communication competence as "the subjective contextual assessment, of observable (behavioural, verbal), functional, molecular level, task/work-related communication skills, embedded within social interaction, on a continuum" and developed a scale to measure this multifaceted construct. Additionally, SA respondents' differentiation of this conceptualization into eight subcategories, as a basis for evaluating how SA employees communicate at work, suggests greater dimensionality relative to other workplace communication competence measures.

By conceptualizing verbal workplace communication skills as work-related communication, the emergence of work-related aspects of Expressive Language (Information exchange, Explaining, Discussing, and Influencing) and Receptive Language (Listening, Comprehension, and Interpreting Higher order Language) was anticipated. Furthermore, the conceptualisation of workplace communication as relational was predictability reflected in Relational communication skills. However, within SA workplaces, Pragmatic Skills may be conceptually allied to Relational Communication Skills, and Caring and Help Communication Skills, as indicated by theoretically interpretable item cross-loadings. A possible explanation for the conceptual overlap between Pragmatic Skills and Relational Communication Skills, in interdependent intercultural SA workplaces, is that difficult cross-cultural interactional pragmatics may act as barriers in interactional sociolinguistics. Similarly, the SA cross-cultural nature of workplace interactions, could explain the

differentiation of Conversational Repair, as a pertinent independent category, distinct from Pragmatic Skills. The emergence of Resolving Skills (e.g. the resolution of problems, conflicts, customer/client and line manager complaints, and requesting/providing feedback and verification) reflects goal-directed facet of the workplace communication conceptualisation. The differentiation of the Higher Order Language subscale (i.e. the understanding of abstract and inferential language understanding) suggests a broader conceptualisation of workplace communication skills as required by competent communicators in SA workplaces.

Implications for Industrial/Organisation Psychology

SOFCD provides HR with a South African communication competence framework (factors and items) across jobs (i.e. according to the level of communication competence employees perceive as required in their jobs). The further development of this scale would target jobs as the unit of analysis, and would involve developing criterion referenced norm tables for different jobs (i.e. establishing empirical links between the level of competence in communication behaviours and job-specific performance outcomes). The SOFCD framework would ultimately facilitate the quick and efficient production of tailored job-specific criterion referenced norms for the immediate customisation of job-specific communication assessment tools (assessment outputs tailored to specific jobs) and focused interventions. This reduces reliance on contextually inappropriate tools, and the particular skills/abilites of individual consultants (Bartram, 2004). Thus, the new SOFCD, has implications as a potential organisational tool in recruitment and selection, job profiling, employee training, development and coaching, and performance evaluation, in SA organisations.

The new SOFCD is particularly relevant to the notion of "fairness" or procedural justice in psychological assessment for recruitment, selection and promotional opportunities, which is pertinent in the post apartheid SA context, due to the historical misuse of psychological assessments as racially discriminatory gatekeepers in apartheid South African (Donald, Thatcher, & Milner, 2014). Decision-making tools in the South African workplace must be shown to be procedurally just (Donald et al., 2014). Firstly, the new SOFCD is considered an unbiased communication assessment instrument when used with fair selection non - discriminatory procedures, as it was developed within the SA multi-cultural context, and is reliable and valid. Beyond being an Employment Equity act compliant assessment tool, the new SOFCD overcomes a further threat to procedural justice in communication assessment:

systematic differences in English language proficiency distributions between groups, as a legacy of apartheid (Theron, 2007). In the new SOFCD the competence (efficacy and appropriateness) of observable goal-directed communication is subjectively judged on its functionality, within an interpersonal interaction. Thus, judgments of communicative competence are filtered through a multi-cultural perspective, extraneous to the correct use of English morphology, syntax and uni-cultural pragmatics. In the new SOFCD, the emergence of cross-cultural interactional pragmatic items (e.g. Understanding cultural norms), in the Receptive Language category, and the differentiation of Conversational Repair, is reflective of the distribution of the criterion across race groups.

Implications for Speech Language Pathology

The disproportionately high incidence of traumatic brain injury (TBI) in SA, combined with legislated re-employment practices (The Labour Relations Act 66, of 1995, The Employment Equity Act, 55 of 1998, and, The Integrated National Disability Policy Framework) does not predict the poor rate of return to work (RTW) post acquired brain injury in SA (i.e. 32% RTW (Watt & Penn, 2000), and a 30-65% RTW post injury rate across nine countries, including SA (Hardaker, 2012)). Across legislated Acts, Codes of Good Practice specify the assessment of the disability to inform: reasonable job accommodations and equitable working conditions, alternative placements, and facilitate the matching of disabled job-seekers with job-related requirements (Department of Labour, 2002; Government Gazette, 1998; Office of the President, 2015). Given the well established correlation between communication skills and successful RTW (Penn, et al., 1998), legislative compliance requires an SA real-world measure of workplace communication competency skills pertaining to specific jobs. The new SOFCD scale can be used to establish a set of job-specific communication competencies (i.e. norms pertaining to specific jobs) within a normal population, which could be used to assess residual language capacities relative to job-specific communication requirements to inform RTW post brain injury.

The SOFCD scale, in its current from, has immediate diagnostic and therapeutic implications for the broad re-integration of post brain injury clients into SA workplaces. In SA, RTW rehabilitation is exacerbated by the lack of a legislated RTW framework, the limited availability of vocational rehabilitation services, which are furthermore unsupported by a dominant vocational placement model, and cultural and contextual understandings of TBI that lead to delayed rehabilitation and RTW (Mokhosi & Grieve, 2004; Olivier, Govindjee,

Cheong, & Aziz Mohammed, 2012). In the face of limited communication vocational rehabilitation services in SA, the new SOFCD can be used to focus speech pathology therapeutic aims towards RTW.

Universally, vocation rehabilitation in Speech Language Pathology, is a relatively neglected field of practice and research. The new SOFCD, when used in conjunction with other post acquired brain injury language assessments, as a real-world measure of workplace communication skills, could offer an entre to collaborative practice with Industrial/Organisational Psychology, for the benefit of RTW speech pathology clients, and ultimately the field of Communication vocation rehabilitation.

STRENGTHS AND WEAKNESSES

There are a number of strengths to this scale development research. The new SOFCD measure is trans-disciplinary, and trans-theoretical, in comparison to previous measures informed by a single theory with in a particular discipline. A range of theoretical orientations from different disciplines were used in the qualitative item-pool sort e.g. Speech Language Pathology, Linguistics, Industrial/Organisation Psychology: Workplace communication, and Relational communication. Thus, the new SOFCD scale has enhanced generalisability.

Another strength is that the selection of items for the new SOFCD scale was primarily based on statistical analysis results (i.e. pre- and post-deletion EFA's and CFA), with the final selection of items allowing for qualitative considerations (e.g. the theoretical interpretability of cross-loading items). Thus, the selection of items was individually clearly rationalized and justified.

A further strength is that the scale development followed a multi-step process with sound psychometric principles, conservative decision rules, and replicable factor patterns (i.e. the skewed kurtotic data required polychoric correlations, three traditional and four modern standard factor extraction methods were utilised, and five statistical EFA model fit indices, as well as the clarity of the theoretical interpretability, were used in the pre- and post deletion EFAs, and in the CFA the Bollen-Stine statistic and bootstrapped individual parameter estimates were used).

Finally, the SOFCD appears to tap distinct aspects of workplace communication skills when compared to existing measures (e.g. Higher Order Language), and although it is not limited to a specific job type or level, it could be used to establish a set of job-specific communication competencies. Finally, the current project was able to meet its aims in producing not only a valid and reliable measure of workplace communication competency skills, but a practical and proficient way to operationalise communication competency in SA workplaces.

A key limitation of this study relates to the nature of the participants in the final scale administration. The 303 sample met the sample size requirements for a reliable factor analysis, and was demographically reflective of the SA population in terms of race, gender, language group, and education levels, and included non/professional jobs across 30 distinct economic sectors, including all major SASCO skill-level occupational groups. However, it is possible that senior management employees were under-represented in the Wits Plus and social network samples. These senior management employees may have indicated requiring communicative competence in Leading/ Leadership Skills and Formal presentation categories, and broadened the conceptualisation of workplace communication competence skills in the new SOFCD.

Despite assurances of anonymity and confidentiality, and the random collection of response questionnaires, during the administration, respondents may have been inclined to over-estimate the communicative competence required by their jobs, due to a social desirability bias, as the measures were administered during Wits Plus classes. A social desirability scale could have been correlated with the SOFCD scores. Additionally, unfamiliarity with rating workplace communication items, misunderstandings of items, the ordering of items, and the use of a response set may have impacted participant responses.

As suggested in previous research, frequently observed/used communication behaviours may not be the communication behaviours in which competency is required by jobs (Keyton, et al., 2013). Theoretically interpretable cross-loading items in the final 63-item eight factor solution, which appeared to fit conceptually into both their primary loading category and their secondary loading category, could be further analysed to confirm which of these items remain in the scale. Finally, the investigation of validity could have included additional measures of convergent validity, as well as a measure of temporal stability (test-retest reliability). However, these inclusions could have lengthened respondents' questionnaires, requiring multiple studies (Wainwright, 2010).

FUTURE RESEARCH

The development of the new SOFCD has followed sound psychometric hierarchical multi-steps with replicable factor patterns. Thus, it is recommended that this process continue beyond the initial development, in the following direction. It would be desirable for future research to correlate the SOFCD scores to a social desirability scale, to assess the impact of social desirability on participant responses. The current EFA results provided tentative evidence of the adequacy of the new 63-item SOFCD scale in capturing all dimensions of workplace communication competence across eight factors, in a demographically diverse adequate sample. However, future research should further validate the 63-item eight factor structure across a wider sample, include corporate samples and management level employees. Furthermore, the development of normative data for firstly, the SOFCD scale as a whole, and secondly, a set of job-specific communication competencies (i.e. norms pertaining to specific jobs), across different organisational levels, would yield a more focused assessment of workplace communication. Additionally, in line with Keyton et al.'s (2013) recommendations, future research could assess the impact of workplace communication on work performance measures, and organisational culture on workplace communication. Finally, within Speech Language Pathology research, the new SOFCD should be validated on a communicatively compromised sample (post acquired brain injury), to inform RTW communication vocational rehabilitation.

CONCLUSION

Competent communication skills are essential within South African workplaces. This research has offered an alternative conceptualisation of workplace communication competence skills, which is considered more appropriate to the multi-cultural, multi-lingual South African workplace. Thus, communicative competence was conceptualised as the subjective assessment of observable (behavioural, verbal), functional, molecular level, task/work-related communication skills, embedded within social interaction, on a continuum of communicative competence. The need for a valid, reliable, procedurally fair communication assessment scale, measuring all dimensions of these routinely occurring interactional task-related communication skills, has not been met by previous measures which were developed with unitary theoretical orientations from a particular discipline, and lack inclusive utility.

This research aimed to develop a measure of this construct that could be routinely used in Industrial/Organisation Psychology practice as a communication assessment tool, as well as in Speech Language Pathology RTW rehabilitation to inform therapy goals and intervention. This research made use of methodological and statistical strengths from previous scale development research at each step of the construction of the new SOFCD, to produce a valid and reliable, unique measure of competence in workplace communication skills. It is argued that this research has been successful in developing a practical measure of general workplace communication competence, which would benefit from further development in job-specific communication profiles.

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APPENDIX 1

Psychology
The School of Human & Community Development (SHCD)
University of the Witwatersrand

Private Bag 3, WITS, 2050 · Tel: (011) 717 4500 · Fax: (011) 717 4559 · E-mail: psych.SHCD@wits.ac/z

INFORMED CONSENT FOR PARTICIPANTS IN THE RESEARCH STUDY

Study Title: The New Scale of Occupational Functional Communication Demands (SOFCD): Developing a Measure of Competence Required in Workplace-Communication-Skills in Jobs

I would like to invite you to take part in my Organisational Psychology Masters research project, entitled, "The New Scale of Occupational Functional Communication Demands (SOFCD): Developing a Measure of Competence Required in Workplace-Communication-Skills in Jobs" currently being conducted at the University of the Witwatersrand.

The questions in the survey concern communication in the workplace, and take about 10 minutes to complete.

The purpose of this survey is to help me develop a measurement instrument to assess the required communication in jobs.

I do not anticipate that taking the survey will contain any risk to you. Furthermore, your participation is strictly voluntary and non-remunerated, and you may withdraw your participation without giving a reason or penalty.

All responses will be kept confidential and anonymous. If you have any questions please ask or contact:

Melissa Phillips
081 717 7505

By signing this you are verifying the following. You have read the explanation of the study. You agree to participate. You are currently employed. You also understand that your participation is strictly voluntary.

Participant's signature_____ Date_____

Occupational Demographics Questionnaire (Pitt & Siemers, 2012)

Please answer the following questions.

Age in years: _____

Length of Tenure in your current job: _____

Please answer the following questions by making an 'X' on appropriate line.

Gender: Female _____ Male: _____

Race: Black: _____ White: _____ Indian: _____ Coloured: _____ Other: _____

If *other*, please specify: _____

** Race will be used for statistical purposes only and is not intended to offend*

Your position or job title in the organisation: Full Time: _____ Part Time: _____

If *other*, please specify: _____

Level of education: Matric: _____ Undergraduate Degree: _____

Diploma: _____ Postgraduate Degree: _____

If you have a postgraduate degree, please specify: _____

Language: English:_____Afrikaans:_____Zulu:_____Xhosa:_____Southern Sotho:_____

Tswana: _____ Northern Sotho: _____Venda: _____ Tsonga: _____ Swazi: _____ Ndebele: _____

Other: _____ If *other*, please specify: _____

Thinking of your previous day at work and how others communicated, use the checklist to check off the behaviours you did or did not hear or observe.

EXPRESSIVE LANGUAGE	Present	Absent
INFORMATION EXCHANGE		
Requesting information.		
Conveying information clearly so others can understand you.		
Conveying information to customers/clients, the public, government, and other external sources.		
Conveying information to supervisors, colleagues, team members, or subordinates.		
Conveying routine information.		
Conveying complex information.		
Briefing others.		
DISCUSSING		
Initiating open discussion.		
Discussing work-related problems or issues in detail.		
Participating in informal work-related discussions with a colleague/s		
Participating in discussions in meetings with management.		
Participating in team discussions.		
Joint decision making.		
EXPLAINING/DESCRIBING		
Explaining simple facts.		
Explaining difficult subject matter.		
Explaining to colleagues.		
Explaining to clients/customers.		
Describing a problem experienced or situation to a supervisor.		
Translating or explaining what information means.		
Describing how information can be used.		
Explaining by giving examples.		
INSTRUCTING		
Giving instructions to colleagues.		
Giving instructions to subordinates.		
Giving routine instructions.		
Giving complex instructions.		
Giving clear instructions.		
Responding verbally to instructions.		
LEADING/ LEADERSHIP SKILLS		
Leading team members.		
Leading subordinates.		
Leading/chairing meetings.		
Motivating Subordinates.		
Debriefing on completing a project.		
PERSUADING/INFLUENCING		
Persuading or convincing others to consider different options.		
Convincing others to change their minds or behaviour		
Arguing or making a case for a specific view to colleagues and management.		
Making a sales pitch		
NEGOTIATING		
Negotiating with team members.		
Negotiating with clients. e.g. clarifying detailed work specifications.		
Negotiating with supervisors.		

FORMAL PRESENTATION	Present	Absent
Making formal verbal presentations on projects, proposals, plans, designs, etc.		
Introducing someone at an event.		
Making formal presentations in large meetings (13 +).		
Giving a presentation to a small group (3 to 12).		
Giving specialist presentations to colleagues.		
EXPRESSING NEGATIVE EMOTION/REPORTING BAD NEWS		
Questioning or raising doubts.		
Venting frustration.		
Complaining.		
Reporting problems.		
Communicating bad news.		
Communicating a crisis.		
VERIFYING AND FEEDBACK		
Seeking approval.		
Providing verification or confirming.		
Agreeing.		
Requesting feedback		
Giving feedback.		
Praising efforts.		
Providing performance feedback in a performance review.		
OPINIONS		
Asking for opinions		
Expressing opinion, ideas or alternative strategies.		
Defining and promoting an agenda with a supervisor or management.		
Exchange ideas and opinions with clients.		
QUESTIONS/ INTERVIEWS		
Interviewing for selection and recruitment.		
Responding verbally to interview questions.		
Inviting questions		
Asking straightforward questions to obtain the required information.		
Asking appropriate questions for specific information from supervisors, specialists, and others.		
Answering questions.		
INTERPERSONAL RELATIONSHIPS		
Establishing constructive and cooperative working relationships with colleagues, team members, supervisors, and customers/clients.		
Maintaining interpersonal relationships.		
Building trust.		
Joking/ using humour.		
Networking.		
Getting members of a group to work together to accomplish tasks.		
CONFLICT RESOLUTION/NEGOTIATION		
Negotiating with team members, to try and reconcile differences.		
Negotiating with clients .e.g. clarifying detailed work specifications.		
Handling customer/client, or line-manager complaints.		
Negotiating with supervisors.		
Resolving conflicts.		
Showing respect for others when resolving conflicts.		
Standing up for oneself.		

INTERACTIONAL PRAGMATICS	Present	Absent
Being socially perceptive and sensitive to the feelings of others.		
Adapting spoken language when interacting with different cultures.		
Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers.		
Telling personal stories in conversation.		
Getting one's point across in a conversation.		
Being socially approachable.		
Generally saying the right thing at the right time in conversations.		
Thanking.		
Greeting others.		
Being relaxed and comfortable when talking to others.		
Conveying confidence.		
Empathising with others.		
Validating and acknowledging others.		
Showing interest in others during conversations.		
Disclosing an appropriate level of personal information in conversations.		
CONVERSATIONAL REPAIR		
Asking for clarification in conversational incomprehension.		
Verifying comprehension in conversations.		
Repeating/ restating information to clarify conversational incomprehension.		
Paraphrasing (rephrasing) information to clarify conversational incomprehension.		
Explaining to clarify conversational incomprehension.		
HELPING		
Calling the supervisor for help if required.		
Offering help.		
Providing personal assistance, emotional support, or other personal care to others such as colleagues and customers/clients.		
Guiding subordinates.		
Providing specialist advice to management.		
Providing specialist advice to clients.		
Providing specialist advice to groups/teams.		
Consulting co-workers.		
TEACHING		
Coaching and mentoring others.		
Teaching or instructing others.		

MOTOR SPEECH	Present	Absent
Speaking and pronouncing words clearly so that others can understand you.		
Speaking fluently.		
Using voice for emphasis e.g. speed, pitch, volume.		
Using good voice projection to make public announcements and broadcasts.		

RECEPTIVE LANGUAGE	Present	Absent
LISTENING		
Listening attentiveness or giving full attention to what other people are saying.		
Listening responsiveness: taking time to understand the points being made and asking appropriate questions.		
Listening for main ideas		
COMPREHENSION		
Understanding short familiar messages, relating to immediate job demands.		
Understanding brief questions relating to predictable areas of everyday work-related needs.		
Following familiar instructions from colleagues and supervisors.		
Following novel instructions.		
Following complex long verbal instructions.		
Understanding routine work-related conversations.		
Understanding explanations about work-related personal situations.		
Understanding feedback received.		
Understanding conversations on everyday subjects when addressed directly.		
Understanding conversations on technical subjects in own field.		
Understanding colloquial speech and subject matter e.g. slang.		
Understanding complex discussions, including academic subject matter and factual reports.		
Understanding speech at a fast rate.		
Understanding information and instructions under pressure.		
Understanding with differences in style and shifts in register e.g. formal language.		
INTERPRETING		
Understanding different viewpoints.		
Determining colleagues'/supervisor's feelings or emotional state from conversations.		
Understanding conversational inferences.		
Understanding ambiguity e.g. The chicken is ready to eat.		
Understanding abstract and figurative language e.g. metaphors, similes, idioms (She is pulling my leg).		
Understanding jokes, riddles, and humour.		
Understanding sarcasm.		
Understanding communicative intent e.g. persuasion, directing etc.		
Understanding cultural norms.		
RESPONDING		
Responding appropriately to what is heard.		

Thank you

APPENDIX 2

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

HUMAN RESEARCH ETHICS COMMITTEE (SCHOOL OF HUMAN & COMMUNITY DEVELOPMENT

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: MORG/16/008 IH**
PROJECT TITLE:	The new scale of occupational functional communication demands (SOFCD): developing a measure of competence required in workplace-communication-skills in jobs.
INVESTIGATORS	Philips Melissa
DEPARTMENT	Psychology
DATE CONSIDERED	29/06/16
DECISION OF COMMITTEE*	Approved

This ethical clearance is valid for 2 years and may be renewed upon application

DATE: 29 June 2016

CHAIRPERSON
(Professor B. Bowman)

cc Supervisor:

Prof. Karen Milner &
Prof. Clare Penn
Psychology

DECLARATION OF INVESTIGATOR (S)

To be completed in duplicate and **one copy** returned to the Secretary, Room 100015, 10th floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure be contemplated from the research procedure, as approved, I/we undertake to submit a revised protocol to the Committee.

This ethical clearance will expire on 31 December 2018

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX 3

School of Human & Community Development

Psychology
School of Human & Community Development
University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4500 Fax: (011) 717 4559

INFORMED CONSENT FOR PARTICIPANTS IN THE RESEARCH STUDY

Study Title: The New Scale of Occupational Functional Communication Demands (SOFCD): Developing a Measure of Competence Required in Workplace-Communication-Skills in Jobs

Thank you for considering participating in this survey. These questions concern communication in the workplace, and take about 20 minutes to complete.

The purpose of this survey is to help me develop a measurement instrument to assess the required communication in jobs.

I do not anticipate that taking the survey will contain any risk to you. Furthermore, your participation is strictly voluntary and non-remunerated, and you may withdraw your participation without giving a reason or penalty.

All responses will be kept confidential. If you have any questions please ask or contact:

Melissa Phillips
081 717 7505

By signing this you are verifying the following. You have read the explanation of the study. You agree to participate. You are currently employed, have been in your current job for 1 year, and have no speech problems (like stuttering or aphasia) or an uncorrected hearing loss. You also understand that your participation is strictly voluntary.

Participant's signature_____ Date_____

Occupational Demographics Questionnaire

Please answer the following questions.

Age in years: _____ **Length of Tenure in your current job:** _____

Please answer the following questions by making an 'X' on appropriate line.

Gender: Female:_____ Male: _____

Race: Black: _____ White: _____ Indian: _____ Coloured: _____ Other: _____

If *other,* please specify: _____

** Race will be used for statistical purposes only and is not intended to offend*

Type of organisation/sector:

Agriculture/forestry/fishing		Banking & Capital Markets	
Energy, Utilities & Mining		Asset and Wealth Management	
Metals		Financial Services	
Manufacturing (consumer goods)		Insurance	
Industrial Manufacturing		Real estate	
Pharmaceuticals		Retirement Funds	
Chemicals		Medical Schemes	
Architecture, Engineering & Construction		Advertising	
Automotive		Legal services	

Hospitality & Leisure	
Entertainment & Media	
Healthcare	
Education	
Transportation & Logistics	
Personal services (beauty/hairdressing etc)	
Sport/recreation/cultural	
Research and development	

Public Sector	
Government and Public Services	
Wholesale & retail trade	

Telecommunications	
Technology	

Other_____

Your position or job title in the organisation: _____

Full Time: _____ Part Time: _____

Highest level of education:

Matric	
Diploma	
Undergraduate Degree	
Postgraduate Degree	

If you have a postgraduate degree, please specify: _____

First language:

English	
Afrikaans	
Zulu	
Xhosa	
Southern Sotho	
Tswana	

Northern Sotho	
Venda	
Tsonga	
Swazi	
Ndebele	

Other: _____ If *other,* please specify: _____

New Scale of Occupation Functional Communication Demands (SOFCD)

Based on your own experiences, use the following statements to evaluate the level of communication competence required in your job.

	Excellent	Good	Fair	Poor	Not Required
Conveying information to others	O	O	O	O	O
Initiating open discussion.	O	O	O	O	O
Participating in discussions.	O	O	O	O	O
Explaining simple facts.	O	O	O	O	O
Explaining difficult subject matter.	O	O	O	O	O
Giving clear instructions.	O	O	O	O	O
Responding verbally to instructions.	O	O	O	O	O
Persuading or convincing others to consider different options.	O	O	O	O	O
Questioning or raising doubts.	O	O	O	O	O
Reporting problems.	O	O	O	O	O
Requesting feedback	O	O	O	O	O
Giving feedback.	O	O	O	O	O
Providing verification or confirming.	O	O	O	O	O
Agreeing.	O	O	O	O	O
Asking for opinions.	O	O	O	O	O
Expressing ideas and opinions.	O	O	O	O	O
Exchanging ideas and opinions with others.	O	O	O	O	O
Answering questions.	O	O	O	O	O
Asking appropriate questions for specific information.	O	O	O	O	O
Establishing constructive and cooperative working relationships with others.	O	O	O	O	O
Maintaining interpersonal relationships.	O	O	O	O	O
Building trust.	O	O	O	O	O
Joking/ using humour.	O	O	O	O	O
Networking.	O	O	O	O	O
Resolving conflicts.	O	O	O	O	O
Handling customer/client, or line-manager complaints.	O	O	O	O	O
Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers (small talk)	O	O	O	O	O
Getting one's point across in a conversation.	O	O	O	O	O
Generally saying the right thing at the right time in conversations.	O	O	O	O	O
Being socially perceptive and sensitive to the feelings of others.	O	O	O	O	O
Adapting spoken language when interacting with different cultures.	O	O	O	O	O
Thanking.	O	O	O	O	O
Greeting others.	O	O	O	O	O
Being relaxed and comfortable when talking to others	O	O	O	O	O
Conveying confidence.	O	O	O	O	O

	Excellent	Good	Fair	Poor	Not Required
Empathising with others.	O	O	O	O	O
Validating and acknowledging others.	O	O	O	O	O
Showing interest in others during conversations	O	O	O	O	O
Disclosing an appropriate level of personal information in conversations.	O	O	O	O	O
Standing up for oneself	O	O	O	O	O
Asking for clarification in conversational incomprehension.	O	O	O	O	O
Verifying comprehension in conversations.	O	O	O	O	O
Repeating/ restating information to clarify conversational incomprehension.	O	O	O	O	O
Paraphrasing (rephrasing) information to clarify conversational incomprehension.	O	O	O	O	O
Explaining to clarify conversational incomprehension.	O	O	O	O	O
Calling the supervisor for help if required.	O	O	O	O	O
Offering help.	O	O	O	O	O
Providing guidance/advice.	O	O	O	O	O
Providing personal assistance, emotional support, or other personal care to others.	O	O	O	O	O
Consulting co-workers.	O	O	O	O	O
Teaching/ Coaching/Mentoring others.	O	O	O	O	O
Speaking and pronouncing words clearly so that others can understand you.	O	O	O	O	O
Speaking fluently.	O	O	O	O	O
Using voice for emphasis e.g. speed, pitch, volume.	O	O	O	O	O
Listening with full attention.	O	O	O	O	O
Active listening: taking time to understand the points being made and asking appropriate questions.	O	O	O	O	O
Listening for main ideas	O	O	O	O	O
Understanding routine work-related discussions.	O	O	O	O	O
Understanding complex discussions, including technical subjects in own field and factual reports.	O	O	O	O	O
Understanding familiar work-related messages and instructions.	O	O	O	O	O
Understanding complex long verbal instructions	O	O	O	O	O
Understanding feedback received.	O	O	O	O	O
Understanding differences in style and shifts in register e.g. formal language.	O	O	O	O	O
Understanding what the communicative intent of a speaker is e.g. persuasion, directing etc.	O	O	O	O	O
Understanding conversational inferences.	O	O	O	O	O
Understanding cultural norms.	O	O	O	O	O
Understanding sarcasm.	O	O	O	O	O
Understanding jokes, riddles, and humour.	O	O	O	O	O
Understanding metaphors, similes, idioms (Laughter is the best medicine)(abstract/ figurative language)	O	O	O	O	O

Adapted Relational Competence Scale (SRC) (Spitzberg & Cupach, 1984)

Recall a recent conversation and respond to the following items, regarding yourself in the conversation.

	Strongly Disagree	Mildly Disagree	Undecided	Mildly Agree	Strongly Agree
I was relaxed and comfortable when speaking.	O	O	O	O	O
I expressed myself clearly.	O	O	O	O	O
I gave positive feedback.	O	O	O	O	O
I gained the other's trust.	O	O	O	O	O
I was assertive.	O	O	O	O	O
I was a good listener.	O	O	O	O	O
I was supportive.	O	O	O	O	O
I showed an interest in the conversation.	O	O	O	O	O
I was sarcastic.	O	O	O	O	O
I was awkward in the conversation.	O	O	O	O	O
I was socially skilled.	O	O	O	O	O
I was confident.	O	O	O	O	O
I found it difficult to express my true feelings.	O	O	O	O	O
I ignored the other person's feelings.	O	O	O	O	O
I lacked self-confidence	O	O	O	O	O
I was an effective conversationalist.	O	O	O	O	O
I talked too much about yourself.	O	O	O	O	O
I pretended to listen when I actually didn't.	O	O	O	O	O
I was shy.	O	O	O	O	O
I was nervous during the conversation.	O	O	O	O	O
I was a competent communicator.	O	O	O	O	O
I was respectful.	O	O	O	O	O
I interrupted too much.	O	O	O	O	O
I understood the other person.	O	O	O	O	O
I was sensitive to the needs and feelings of the other person.	O	O	O	O	O

Adapted Communicative Competence Questionnaire (CCQ) (Monge et al., 1982)

In this series of questions I would like you to describe how you communicate. Think about your behaviour in general, rather than about a specific situation.

In responding to the statements below, please use the following scale:

	Strongly Disagree	Mildly Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Mildly Agree	Strongly Agree
I have a good command of the language.	O	O	O	O	O	O	O
I am sensitive to others' needs of the moment.	O	O	O	O	O	O	O
I typically get right to the point.	O	O	O	O	O	O	O
I pay attention to what other people say to me.	O	O	O	O	O	O	O
I deal with others effectively.	O	O	O	O	O	O	O
I am a good listener.	O	O	O	O	O	O	O
I express my ideas clearly.	O	O	O	O	O	O	O
I am difficult to understand when I speak.	O	O	O	O	O	O	O
I generally say the right thing at the right time.	O	O	O	O	O	O	O
I am easy to talk to.	O	O	O	O	O	O	O

APPENDIX 4

Psychology
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Private Bag 3, WITS, 2050 · Tel: (011) 717 4500 · Fax: (011) 717 4559 · E-mail: psych.SHCD@wits.ac/za

INFORMED CONSENT FOR PARTICIPANTS IN THE RESEARCH STUDY

Study Title: The New Scale of Occupational Functional Communication Demands (SOFCD): Developing a Measure of Competence Required in Workplace-Communication-Skills in Jobs

I would like to invite you to take part in my Organisational Psychology Masters research project, entitled, "The New Scale of Occupational Functional Communication Demands (SOFCD): Developing a Measure of Competence Required in Workplace-Communication-Skills in Jobs" currently being conducted at the University of the Witwatersrand.

The questions in this survey concern communication in the workplace, and take about 20 minutes to complete.

The purpose of this survey is to help me develop a measurement instrument to assess the required communication in jobs.

I do not anticipate that taking the survey will contain any risk to you. Furthermore, your participation is strictly voluntary and non-remunerated, and you may withdraw your participation without giving a reason or penalty.

All responses will be kept confidential and anonymous, and your IP address will deleted after the data has bee captured. If you have any questions please contact:

Melissa Phillips
081 717 7505

By proceeding with this survey you verify that you have read the explanation of the study, and agree to participate. You are currently employed, have been in your current job for a minimum of 2 years, and have no speech problems (like stuttering or aphasia) or an uncorrected hearing loss. You also understand that your participation is strictly voluntary.

APPENDIX 5

DEMOGRAPHICS

Gender	
Male	1
Female	2
Race	
Black	1
White	2
Indian	3
Coloured	4
Other	5
Sector	
Agriculture/forestry/fishing	1
Energy, Utilities and Mining	2
Metals	3
Manufacturing (consumer goods)	4
Industrial Manufacturing	5
Pharmaceuticals	6
Chemicals	7
Architecture, Engineering and Construction	8
Automotive	9
Hospitality and Pleasure	10
Entertainment and Media	11
Healthcare	12
Education	13
Transport and Logistics	14
Personal Services (beauty/hairdressing et cetera)	15
Sport/Recreation/Cultural	16
Research and Development	17
Banking and Capital Markets	18
Effort and Wealth Management	19
Financial Services	20
Insurance	21
Real Estate	22
Retirement Funds	23
Medical Schemes	24
Advertising	25
Legal Services	26

Highest level of Education	
Matric	1
Diploma	2
Undergraduate Degree	3
Postgraduate Degree	4
Tenure	
Full-time employment	2
Part-time employment	1
First Language	
English	1
Afrikaans	2
Zulu	3
Xhosa	4
Southern Sotho	5
Tswana	6
Northern Sotho	7
Venda	8
Tsonga	9
Swazi	10
Ndebele	11
Other	12
Public Sector	27
Government and Public Services	28
Wholesale and Retail trade	29
Telecommunications	30
Technology	31
Other	32

SRC (Cupach & Spitzberg, 1981)

Strongly Agree	5
Mildly Agree	4
Undecided	3
Mildly Disagree	2
Strongly Disagree	1

CCQ (Monge et al., 1982)

Strongly Agree	7
Mildly Agree	6
Agree Somewhat	5
Undecided	4
Disagree Somewhat	3
Mildly Disagree	2
Strongly Disagree	1

69-item SOFCD

Excellent	5
Good	4
Fair	3
Poor	2
Not required	1

APPENDIX 6

Table A. Item Reduction and Modification

Collapsed into existing item/s	
Item/s	**Item Modification**
– Requesting information. – Asking straightforward questions to obtain the required information.	Asking appropriate questions for specific information.
– Conveying information clearly so others can understand you. – Conveying information to customers/clients, the public, government, and other external sources. – Conveying information to supervisors, colleagues, team members, or subordinates. – Briefing others. – Conveying routine information. – Conveying complex information.	Conveying information to others.
– Participating in informal work-related discussions with a colleague/s. – Participating in team discussions.	Participating in discussions.
– Explaining to colleagues. – Explaining to clients/customers. – Describing a problem experienced a situation to a supervisor. – Translating or explaining what information means. – Explaining by giving examples. – Describing how information can be used.	Explaining simple facts. Explaining difficult subject matter.
– Giving instructions to colleagues. – Giving routine instructions. – Giving complex instructions	Giving clear instructions.
– Persuading or convincing others to consider different options. – Convincing others to change their minds or behaviour. – Arguing making a case for a specific view to colleagues and management.	Persuading or convincing others to consider different options.
– Communicating bad news. – Communicating a crisis.	Reporting problems.
Discussing work-related problems or issues in detail.	Resolving conflicts.
Seeking approval	Requesting feedback
– Giving feedback. – Providing performance feedback in a performance review. – Praising efforts.	Giving feedback.
– Expressing opinions, ideas or alternative strategies. – Defining and promoting an agenda with a supervisor or management.	Expressing ideas and opinions.
Understanding different viewpoints.	Exchanging ideas and opinions with others.
– Guiding subordinates. – Providing specialist advice to management. – Providing specialist advice to clients. – Providing specialist advice to groups/teams.	Providing guidance/advice.
– Using voice projection to make public announcements	Using voice for emphasis e.g. speed, pitch, volume.

and broadcasts.	
– Following novel instructions.	Understanding complex long verbal instructions. Understanding complex discussions, including technical subjects in own field and factual reports.
– Understanding routine work-related conversations – Understanding conversations on everyday subjects when addressed directly. – Understanding explanations about work-related personal situations. – Understanding short familiar messages, relating to immediate job demands – Understanding brief questions relating to predictable areas of everyday work-related needs Following familiar instructions from colleagues and supervisors.	Understanding routine work-related discussions. Understanding familiar work-related messages and instructions.
– Understanding conversations on technical subjects in own field. – Understanding complex discussions, including academic subject matter and factual reports.	Understanding complex discussions, including technical subjects in own field and factual reports.
Understanding colloquial speech and subject matter e.g. slang.	Understanding with differences in style and shifts in register e.g. formal language.
– Coaching and mentoring others. – Teaching or instructing others.	Teaching/coaching/mentoring others
Responding appropriately to what is heard.	Active listening: Taking time to understand the points being made and asking appropriate questions.
Determining colleagues/supervisor's feelings or emotional state from conversations.	Being socially perceptive and sensitive to the feelings of others.
Violation of Foundational Assumptions	
Item	**Item Modification**
Getting members of a group to work together to accomplish tasks.	Item deleted. Considered a molar communication task, rather than a molecular communication skill, towards completing a work task.
Negotiating with clients e.g. clarifying detailed work specifications.	Item deleted. Considered specific to certain industries.
Showing respect for others when resolving conflicts.	Item deleted. Considered an attitude of regard towards others, indexed by non-verbal and verbal behaviour.
Telling personal stories in conversation.	Item deleted. Considered a molar communication skill.
Being socially approachable.	Item deleted. Considered an attitude.
Conveying information *clearly*.	Item deleted. Considered a judgement of competence (Phase 2).
Understanding information and instructions *under pressure*	Item deleted. Considered a judgement of competence (Phase 2).
Understanding speech *at a fast rate.*	Item deleted. Considered a judgement of competence (Phase 2).
Rewording	
Item	**Item Modification**
Exchanging ideas and opinions with clients.	Exchanging ideas and opinions with others
Establishing constructive and cooperative work relationship with colleagues, team members, supervisors, and customers/clients.	Establishing constructive and cooperative working relationships with others.
Providing personal assistance, emotional support, or other personal care to others such as colleagues and	Providing personal assistance, emotional support or other personal care to others.

customers/clients	
Listening attentiveness or giving full attention to what other people are saying.	Listening with full attention.
Listening responsiveness: Taking time to understand the points being made and asking appropriate questions	Active listening: Taking time to understand the points being made and asking appropriate questions.
Understanding conversations on technical subjects in own field.	Understanding complex discussions, including technical subjects in own field and factual reports.
– Following complex long verbal instructions.	Rephrased from "following" to "understanding".
Understanding communicative intent e.g. persuasion, directing etc.	Understanding what the communicative intent of a speaker is e.g. persuasion, directing etc.
Understanding abstract and figurative language.	Understanding metaphors, similes, idioms (e.g. Laughter is the best needs) an abstract/figurative language
Understanding ambiguity e.g. The chicken is ready to eat.	Item deleted. Respondents provided negative feedback related to the obscure content of this item.
Asking appropriate questions for specific information from supervisors, specialists, and others.	Asking appropriate questions for specific information.

APPENDIX 7

The 69-item SOFCD scale.

EXPRESSIVE LANGUAGE
INFORMATION EXCHANGE
(1) Conveying information to others
DISCUSSING
(2) Initiating open discussion.
(3) Participating in discussions.
EXPLAINING/DESCRIBING
(4) Explaining simple facts.
(5) Explaining difficult subject matter.
INSTRUCTING
(6) Giving clear instructions.
(7) Responding verbally to instructions.
PERSUADING/INFLUENCING
(8) Persuading or convincing others to consider different options.
EXPRESSING NEGATIVE EMOTION/REPORTING BAD NEWS
(9) Questioning or raising doubts.
(10) Reporting problems.
VERIFYING AND FEEDBACK
(11) Requesting feedback
(12) Giving feedback.
(13) Providing verification or confirming.
(14) Agreeing.
OPINIONS
(15) Asking for opinions
(16) Expressing ideas and opinions
(17) Exchanging ideas and opinions with others.
QUESTIONS/ INTERVIEWS
(18) Answering questions.
(19) Asking appropriate questions for specific information.
INTERPERSONAL RELATIONSHIPS
(20) Establishing constructive and cooperative working relationships with others.
(21) Maintaining interpersonal relationships.
(22) Building trust.
(23) Joking/ using humour.
(24) Networking.
CONFLICT RESOLUTION/NEGOTIATION
(25) Resolving conflicts.
(26) Handling customer/client, or line-manager complaints.
HELPING
(27) Calling the supervisor for help if required.
(28) Offering help.
(29) Providing guidance/advice.
(30) Providing personal assistance, emotional support, or other personal care to others.

(31) Consulting co-workers.
TEACHING
(32) Teaching/ Coaching/Mentoring others.
RECEPTIVE LANGUAGE
LISTENING
(33) Listening with full attention.
(34) Active listening: taking time to understand the points being made and asking appropriate questions.
(35) Listening for main ideas
COMPREHENSION
(36) Understanding routine work-related discussions.
(37) Understanding complex discussions, including technical subjects in own field and factual reports.
(38) Understanding familiar work-related messages and instructions.
(39) Understanding complex long verbal instructions
(40) Understanding feedback received.
(41) Understanding differences in style and shifts in register e.g. formal language.
INTERPRETING
(42) Understanding what the communicative intent of a speaker is e.g. persuasion, directing etc.
(43) Understanding conversational inferences.
(44) Understanding cultural norms.
(45) Understanding sarcasm.
(46) Understanding jokes, riddles, and humour.
(47) Understanding metaphors, similes, idioms (Laughter is the best medicine)(abstract/ figurative language)
PRAGMATICS (phatic utterances, social composure, empathy, altercentrism, appropriate self-disclosure).
GENERAL PRAGMATICS
(48) Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers (small talk)
(49) Getting one's point across in a conversation.
(50) Generally saying the right thing at the right time in conversations.
(51) Being socially perceptive and sensitive to the feelings of others.
(52) Adapting spoken language when interacting with different cultures.
PHATIC UTTERANCES
(53) Thanking.
(54) Greeting others.
SOCIAL COMPOSURE
(55) Being relaxed and comfortable when talking to others
(56) Conveying confidence.
EMPATHETIC COMMUNICATION SKILLS
(57) Empathising with others.
(58) Validating and acknowledging others.
ALTERCENTRISM
(59) Showing interest in others during conversations.
APPROPRIATE SELF-DISCLOSE
(60) Disclosing an appropriate level of personal information in conversations.

ASSERTIVENESS
(61) Standing up for oneself
CONVERSATIONAL REPAIR
(62) Asking for clarification in conversational incomprehension.
(63) Verifying comprehension in conversations.
(64) Repeating/ restating information to clarify conversational incomprehension.
(65) Paraphrasing (rephrasing) information to clarify conversational incomprehension.
(66) Explaining to clarify conversational incomprehension.
MOTOR SPEECH
(67) Speaking and pronouncing words clearly so that others can understand you.
(68) Speaking fluently.
(69) Using voice for emphasis e.g. speed, pitch, volume.

APPENDIX 8

Table B. Pilot Study Associations and Correlations between Response Frequency and Demographic Sample Characteristics

	Race		Gender		Full time/ Part time	Education level		Language		Age			Tenure		
	X^2	p	X^2	p^b	p^b	X^2	p	X^2	p	r_{pb}	*CI 95%*		r_{pb}	*CI 95%*	
	df = 5		*df = 1*			*df* = 3		*df* = 5			*Lower*	*Upper*		*Lower*	*Upper*
Requesting information	2.186	0.702		1	1	2.372	0.499	6.897	0.228	0.184*	0.008	0.089	0.132*	0.016	0.299
Conveying information clearly so others can understand you.	1.397	0.845		1	1	2.352	0.503	7.777	0.169	0.022	-0.454	0.430	-0.116	-0.618	0.224
Conveying information to customers/clients, the public, government, and other external sources.	2.026	0.731		1	1	1.569	0.667	6.627	0.250	-0.378	-0.633	0.040	-0.242	-0.514	0.459
Conveying information to supervisors, colleagues, team members, or subordinates.	8.886	0.064		0.184	1	4.068	0.254	6.951	0.224	-0.155	-0.583	0.268	-0.082	-0.572	0.214
Conveying routine information	7.737	0.102		1	1	4.980	0.173	6.946	0.225	-0.173	-0.586	0.159	0.022	-0.417	0.354
Conveying complex information.	5.996	0.199		0.449	0.306	1.705	0.636	14.726	0.012*	0.061	-0.386	0.438	-0.001	-0.449	0.298
Briefing others.	6.248	0.181		0.408	1	6.680	0.083	4.007	0.548	-0.233	-0.701	0.100	-0.121	-0.595	0.161
Initiating open discussion.	2.738	0.603		0.442	0.641	4.650	0.199	6.022	0.304	0.298*	0.037	0.529	0.213	-0.056	0.400
Discussing work-related problems or issues in detail.	12.951	0.012*		0.704	0.049*	8.062	0.045*	9.916	0.078	0.347*	0.099	0.574	0.215*	0.030	0.396
Participating in informal work-related discussions with a colleague/s	7.426	0.115		1	0.557	1.333	0.721	2.109	0.834	-0.165	-0.648	0.175	-0.168	-0.742	0.264
Participating in discussions in meetings with management.	3.712	0.446	0.556[a]	0.456	0.651	0.723	0.868	6.627	0.250	0.021	-0.402	0.338	0.043	-0.381	0.328
Participating in team discussions.	7.299	0.121		1	0.009*	5.781	0.123	6.415	0.268	0.138	-0.307	0.520	-0.017	-0.469	0.283

Joint decision making.	1.834	0.766		0.694	0.074	0.330	0.954	6.239	0.284	-0.011	-0.261	0.565	-0.160	-0.339	0.255
Explaining simple facts.	15.243	0.004*		1	0.169	6.399	0.094	5.004	0.415	-0.219	-0.049	0.458	0.118	-0.104	0.254
Explaining difficult subject matter.	10.622	0.031*		1	0.120	2.454	0.484	11.168	0.048*	-0.006	-0.525	0.420	-0.090	-0.579	0.213
Explaining to colleagues.	11.109	0.025*		1	0.254	9.872	0.020*	8.136	0.149	0.165	-0.134	0.408	0.138	-0.080	0.270
Explaining to clients/customers.	8.091	0.088		1	0.009*	3.412	0.332	5.597	0.347	-0.058	-0.439	0.392	-0.115	-0.451	0.345
Describing a problem experienced or situation to a supervisor.	2.498	0.645	0.364 [a]	0.547	0.360	4.007	0.261	12.949	0.024*	0.346*	0.072	0.578	0.285*	0.112	0.499
Translating or explaining what information means.	5.826	0.212		1	0.049*	4.242	0.236	10.028	0.074	0.151	-0.243	0.424	0.177	-0.047	0.341
Describing how information can be used.	4.362	0.359	1.833 [a]	0.176	0.360	4.915	0.178	4.886	0.430	0.081	-0.369	0.428	0.078	-0.313	0.384
Explaining by giving examples.	4.464	0.347		0.712	0.641	4.029	0.258	3.929	0.560	-0.011	-0.427	0.343	0.054	-0.382	0.401
Giving instructions to colleagues.	4.697	0.320	0.023 [a]	0.880	1	0.926	0.819	16.397	0.006*	0.148	-0.265	0.475	0.039	-0.374	0.302
Giving instructions to subordinates.	9.234	0.056		0.709	0.660	5.060	0.167	2.983	0.703	-0.043	-0.503	0.316	0.127	-0.308	0.431
Giving routine instructions.	2.978	0.562		0.458	1	12.055	0.007*	11.706	0.039*	-0.151	-0.574	0.171	0.030	-0.377	0.311
Giving complex instructions.	8.430	0.077	0.023 [a]	0.880	0.061	2.456	0.483	11.706	0.039*	0.002	-0.432	0.335	0.036	-0.372	0.298
Giving clear instructions.	8.345	0.080		1	0.075	1.608	0.658	7.208	0.206	0.025	-0.462	0.453	-0.107	-0.599	0.214
Responding verbally to instructions.	1.162	0.884		1	0.200	2.067	0.559	1.272	0.938	0.086*	0.041	0.208	0.116*	0.100	0.351
Leading team members.	3.033	0.552	0.556 [a]	0.456	0.651	4.542	0.209	7.420	0.191	0.176	-0.169	0.645	0	-0.286	0.455
Leading subordinates.	6.783	0.148		0.709	0.660	4.072	0.254	2.696	0.747	0.185	-0.222	0.518	0.180	-0.215	0.484
Leading/chairing meetings.	1.347	0.853		0.266	0.372	1.765	0.623	6.522	0.259	0.311	-0.098	0.622	0.155	-0.257	0.473
Motivating Subordinates.	4.785	0.310		0.712	1	1.569	0.667	6.357	0.273	0.222	-0.159	0.540	0.122	-0.306	0.424
Debriefing on completing a project.	3.579	0.466	0.089 [a]	0.765	1	2.316	0.509	5.755	0.331	-0.224	-0.469	0.214	-0.190	-0.396	0.303
Persuading or convincing others to consider different options.	8.170	0.086		0.218	0.033*	0.965	0.810	8.403	0.078	-0.348	-0.696	0.256	-0.321	-0.642	0.489

Convincing others to change their minds or behaviour	3.258	0.516		1	0.660	4.072	0.254	5.597	0.347	-0.158	-0.489	0.264	-0.075	-0.371	0.380
Arguing or making a case for a specific view to colleagues and management.	2.987	0.560		0.712	0.641	8.746	0.033*	8.701	0.122	-0.307	-0.586	0.053	-0.124	-0.453	0.278
Making a sales pitch.	5.506	0.239		1	0.141	2.239	0.524	13.542	0.019*	-0.142	-0.353	0.180	-0.130	-0.285	0.241
Making formal verbal presentations on projects, proposals, plans, designs, etc.	8.445	0.077	1.094 [a]	0.296	0.657	6.676	0.083	3.855	0.570	0.054	-0.261	0.468	-0.093	-0.375	0.289
Introducing someone at an event.	4.024	0.403		0.136	0.660	3.508	0.320	4.152	0.528	-0.086	-0.377	0.308	-0.076	-0.389	0.307
Making formal presentations in large meetings (13 +).	3.897	0.420		0.034*	1	5.194	0.158	3.424	0.635	0.161	-0.118	0.536	0.066	-0.186	0.487
Giving a presentation to a small group (3 to 12).	5.099	0.277	1.094 [a]	0.296	0.657	6.873	0.076	13.821	0.017*	-0.016	-0.326	0.394	-0.063	-0.348	0.360
Giving specialist presentations to colleagues.	7.098	0.131		0.009*	0.372	8.836	0.032*	12.263	0.031*	0.274	-0.047	0.684	0.069	-0.206	0.525
Questioning or raising doubts.	7.953	0.093		0.235	0.633	3.608	0.307	8.615	0.125	-0.111	-0.437	0.295	-0.164	-0.498	0.268
Venting frustration.	2.885	0.577	0.362 [a]	0.547	1	1.914	0.590	8.817	0.117	0.254	-0.151	0.519	0.351*	0.020	0.563
Complaining.	3.938	0.414		0.136	1	6.339	0.096	4.802	0.441	0.478*	0.233	0.703	0.422*	0.229	0.643
Reporting problems.	2.307	0.679		1	1	4.029	0.258	8.725	0.121	0.084	-0.292	0.341	0.260*	0.069	0.444
Communicating bad news.	6.323	0.176		0.709	1	6.339	0.096	9.400	0.094	0.015	-0.331	0.456	-0.122	-0.315	0.529
Communicating a crisis.	5.270	0.261	2.738 [a]	0.098	1	4.007	0.261	9.400	0.094	0.012	-0.316	0.414	0.018	-0.283	0.565
Seeking approval.	4.928	0.295		0.358	0.571	1.698	0.637	10.842	0.055	0.080	-0.181	0.271	0.193*	0.074	0.389
Providing verification or confirming.	6.186	0.186		0.622	0.254	3.712	0.294	7.243	0.203	0.267*	0.112	0.450	0.182*	0.084	0.395
Agreeing.	7.716	0.103		0.632	0.169	3.968	0.265	7.113	0.212	0.213*	0.052	0.395	0.192*	0.100	0.490
Requesting feedback	3.371	0.498		0.255	1	1.097	0.778	10.820	0.055	0.069	-0.162	0.243	0.094	-0.090	0.264
Giving feedback.	7.988	0.092		1	0.254	3.712	0.294	6.197	0.288	0.258	0.096	0.451	0.173*	0.077	0.392
Praising efforts.	11.618	0.020*		0.235	0.372	1.860	0.602	8.562	0.128	0.169	-0.148	0.382	0.150	-0.259	0.323
Providing performance feedback in a performance review.	6.614	0.158		0.002*	0.372	4.149	0.246	8.562	0.128	0.202	-0.091	0.424	0.186	-0.141	0.354
Asking for opinions	5.375	0.251		0.418	0.645	2.283	0.516	10.818	0.055	0.208	-0.047	0.408	0.198	-0.003	0.383

Expressing opinion, ideas or alternative strategies.	14.078	0.007*		1	0.329	0.321	0.956	6.644	0.249	-0.220	-0.554	0.345	-0.308	-0.652	0.522
Defining and promoting an agenda with a supervisor or management.	2.546	0.636		0.694	0.372	0.330	0.954	7.346	0.196	0.169	-0.196	0.391	0.258*	0.137	0.464
Exchange ideas and opinions with clients.	3.733	0.443		0.704	1	2.781	0.427	5.194	0.393	-0.296	-0.626	0.120	-0.252	-0.605	0.142
Interviewing for selection and recruitment.	14.149	0.007*		0.266	1	0.039	0.998	7.748	0.171	0.248	-0.272	0.558	0.333	-0.113	0.555
Responding verbally to interview questions.	15.453	0.004*	4.434 [a]	0.035*	1	0.926	0.819	7.945	0.159	0.171	-0.322	0.463	0.290	-0.109	0.501
Inviting questions	7.325	0.120	2.222 [a]	0.136	1	0.723	0.868	8.138	0.149	0.125	-0.342	0.405	0.266	-0.063	0.459
Asking straightforward questions to obtain the required information.	4.697	0.320	5.792 [a]	0.016*	0.672	1.914	0.590	9.282	0.098	0.133	-0.275	0.377	0.247	-0.037	0.424
Asking appropriate questions for specific information from supervisors, specialists, and others.	5.180	0.269		0.235	1	4.793	0.188	11.275	0.046*	0.089	-0.302	0.323	0.179	-0.136	0.349
Answering questions.	2.923	0.571		1	0.300	1.120	0.772	3.749	0.586	0.066	-0.328	0.321	0.185	-0.047	0.362
Establishing constructive and cooperative working relationships with colleagues, team members, supervisors, and customers/clients.	6.401	0.171		1	0.254	1.078	0.783	3.701	0.593	-0.045	-0.514	0.347	-0.101	-0.657	0.373
Maintaining interpersonal relationships.	11.187	0.025*		0.548	0.501	3.980	0.264	4.048	0.542	-0.192	-0.706	0.027	-0.261	-0.483	0.163
Building trust.	6.401	0.171		1	1	3.080	0.379	10.908	0.053	-0.180	-0.617	0.180	-0.198	-0.757	0.164
Joking/ using humour.	7.426	0.115		1	1	2.608	0.456	4.111	0.533	-0.128	-0.165	0.287	-0.198	-0.760	0.138
Networking.	7.432	0.115		0.678	0.645	4.653	0.199	2.252	0.813	-0.133	-0.582	0.227	-0.062	-0.511	0.208
Getting members of a group to work together to accomplish tasks.	10.515	0.033*		1	0.641	7.284	0.063	5.468	0.361	-0.112	-0.510	0.222	-0.029	-0.466	0.233
Negotiating with team members, to try and reconcile	2.899	0.575	0.201 [a]	0.654	0.175	8.402	0.038*	5.173	0.395	0.054	-0.361	0.377	0.165	-0.206	0.518

differences.															
Negotiating with clients .e.g. Clarifying detailed work specifications.	1.451	0.835	0.023 [a]	0.880	1	6.275	0.099	7.091	0.214	-0.374*	-0.606	-0.042	-0.296	-0.526	0.157
Handling customer/client, or line-manager complaints.	1.925	0.750	0.814 [a]	0.367	0.360	2.456	0.483	6.086	0.298	-0.216	-0.474	0.255	-0.082	-0.378	0.499
Negotiating with supervisors.	8.152	0.086	0.089 [a]	0.765	0.657	8.058	0.045*	5.848	0.321	-0.223	-0.460	0.167	-0.023	-0.308	0.572
Resolving conflicts.	3.651	0.455	2.738 [a]	0.98	0.360	0.926	0.819	9.751	0.083	0.114	-0.277	0.405	-0.067	-0.353	0.548
Showing respect for others when resolving conflicts.	4.033	0.402		0.442	0.156	0.831	0.842	8.795	0.118	0.155	-0.235	0.501	0.041	-0.326	0.720
Standing up for oneself.	3.431	0.489		0.193	0.603	2.454	0.484	7.965	0.158	-0.054	-0.500	0.309	-0.180	-0.569	0.474
Calling the supervisor for help if required.	1.256	0.869		0.249	0.637	2.781	0.427	13.802	0.017*	0.101	-0.244	0.327	0.226	-0.047	0.474
Offering help.	6.691	0.153		0.622	1	3.170	0.366	8.969	0.110	0.073	-0.228	0.268	0.094	-0.156	0.246
Providing personal assistance, emotional support, or other personal care to others such as colleagues and customers/clients.	8.653	0.070		1	0.645	3.384	0.336	8.725	0.121	0.002	-0.412	0.248	0.077	-0.338	0.284
Guiding subordinates.	9.028	0.060		0.709	0.660	6.706	0.082	3.855	0.570	0.041	-0.438	0.306	0.112	-0.333	0.320
Providing specialist advice to management.	4.024	0.403		0.260	0.184	0.990	0.804	4.319	0.505	0.169	-0.219	0.413	0.289*	0.049	0.575
Providing specialist advice to clients.	4.697	0.320	2.738 [a]	0.098	0.061	4.745	0.191	3.600	0.608	-0.019	-0.319	0.389	0.171	-0.256	0.386
Providing specialist advice to groups/teams.	7.557	0.109		0.121	0.641	13.648	0.003*	6.802	0.236	0.129	-0.023	0.365	0.106	-0.334	0.327
Consulting co-workers.	6.880	0.142		0.099	0.645	4.743	0.192	8.046	0.154	0.151	-0.139	0.374	0.127	-0.250	0.340
Coaching and mentoring others.	1.686	0.793		0.049*	0.637	5.070	0.167	8.753	0.119	0.040	-0.393	0.340	-0.083	-0.652	0.167
Teaching or instructing others.	4.028	0.402		0.049*	1	2.610	0.456	10.028	0.074	0.123	-0.286	0.432	-0.015	-0.541	0.226
RECEPTIVE															
Listening attentiveness or giving full attention to what other people are saying.	2.381	0.666		0.503	1	2.990	0.393	14.102	0.015*	-0.127	-0.463	0.033	0.056	-0.088	0.157

Listening responsiveness: taking time to understand the points being made and asking appropriate questions.	6.747	0.150		0.632	1	0.826	0.363	5.838	0.322	0.148	-0.181	0.424	0.140	-0.096	0.382
Responding appropriately to what is heard.	7.426	0.115		1	1	1.333	0.721	8.528	0.129	0.046	-0.311	0.359	0.070	-0.166	0.214
Listening for main ideas	7.089	0.131		1	0.366	1.292	0.731	6.897	0.228	0.157	-0.098	0.414	0.095	-0.065	0.267
Understanding short familiar messages, relating to immediate job demands.	2.872	0.579		0.66	0.553	9.872	0.020*	10.475	0.063	-0.189	-0.588	0.037	0.032	-0.300	0.174
Understanding brief questions relating to predictable areas of everyday work-related needs.	3.218	0.522		0.130	0.557	6.399	0.094	10.116	0.072	-0.216*	-0.603	-0.222	-0.034	-0.470	0.115
Following familiar instructions from colleagues and supervisors.	2.591	0.628		0.503	1	2.990	0.393	6.897	0.228	-0.089	-0.359	0.040	0.003	-0.244	0.087
Following novel instructions.	5.645	0.227		0.066	0.553	9.872	0.020*	8.969	0.110	-0.189	-0.561	0.037	-0.038	-0.483	0.134
Following complex long verbal instructions.	2.817	0.589		0.193	0.603	2.544	0.467	8.534	0.129	0.046	-0.317	0.304	0.224*	0.021	0.504
Understanding routine work-related conversations.	2.691	0.611		0.255	0.501	4.070	0.254	7.113	0.212	-0.033	-0.292	0.140	0.097	-0.178	0.292
Understanding explanations about work-related personal situations.	3.371	0.498		0.255	1	4.070	0.254	10.820	0.055	-0.159	-0.468	0.012	-0.072	-0.517	0.061
Understanding feedback received.	7.716	0.103		0.632	1	1.423	0.700	10.116	0.072	0.120	-0.281	0.397	0.178*	0.029	0.395
Understanding conversations on everyday subjects when addressed directly.	2.381	0.666		0.503	1	2.990	0.393	14.102	0.015*	-0.127	-0.63	0.033	0.056	-0.088	0.157
Understanding conversations on technical subjects in own field.	2.085	0.720		0.503	1	1.292	0.731	6.897	0.228	-0.071	-0.327	0.050	0.003	-0.251	0.089
.Understanding colloquial speech and subject matter e.g. Slang.	4.664	0.323		0.066	0.553	7.609	0.055	8.749	0.120	-0.099	-0.409	0.093	-0.021	-0.443	0.134

Understanding complex discussions, including academic subject matter and factual reports.	3.218	0.522		0.632	0.557	6.309	0.097	11.392	0.044*	-0.230*	-0.603	-0.091	0.006	-0.339	0.139
Understanding speech at a fast rate.	3.613	0.461		0.622	1	1.129	0.770	9.929	0.077	-0.023	-0.384	0.288	-0.001	-0.396	0.151
Understanding information and instructions under pressure.	2.022	0.732		0.362	1	2.087	0.554	8.854	0.115	-0.049	-0.463	0.238	0.131	-0.183	0.340
Understanding with differences in style and shifts in register e.g. Formal language.	3.985	0.408		0.622	0.553	6.053	0.109	10.116	0.072	-0.189	-0.573	0.037	0.016	-0.347	0.160
Understanding different viewpoints.	9.427	0.051		1	0.571	0.339	0.953	7.784	0.169	0.143	-0.237	0.395	0.239*	0.087	0.521
Determining colleagues'/supervisor's feelings or emotional state from conversations.	3.479	0.481		1	0.553	1.078	0.783	9.429	0.093	0.106	-0.291	0.421	0.149*	0.005	0.349
Understanding conversational inferences.	5.700	0.223		0.130	1	1.423	0.700	4.111	0.533	0.092	-0.311	0.413	-0.023	-0.507	0.192
Understanding ambiguity e.g. The chicken is ready to eat.	1.256	0.869		0.249	0.637	2.977	0.395	7.117	0.212	-0.348	-0.590	0.033	-0.283	-0.553	0.209
	2.872	0.579		1	0.553	7.779	0.051	4.111	0.533	-0.508*	-0.755	-0.100	-0.512*	-0.805	-0.130
Understanding jokes, riddles, and humour.	1.397	0.845		1	0.553	1.078	0.783	4.178	0.524	-0.342	-0.715	0.208	-0.461	-0.762	0.002
Understanding sarcasm.	2.422	0.659		1	1	2.608	0.456	2.773	0.735	-0.214	-0.717	0.386	-0.346	-0.791	0.370
Understanding communicative intent e.g. Persuasion, directing etc.	4.658	0.324		0.385	1	5.705	0.127	1.272	0.938	-0.445*	-0.682	-0.443	-0.466	-0.931	-0.344
Understanding cultural norms.	4.515	0.341		1	0.557	1.423	0.700	5.838	0.322	0.046	-0.347	0.335	0.080	-0.069	0.205
PRAGMATICS															
Being socially perceptive and sensitive to the feelings of	7.371	0.118		0.364	1	4.807	0.187	10.154	0.071	-0.255	-0.729	0.163	-0.371	-0.859	0.271

others.															
Adapting spoken language when interacting with different cultures.	5.010	0.286		0.632	0.557	4.306	0.230	13.502	0.019*	-0.110	-0.523	0.096	0.059	-0.126	0.165
Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers.	3.371	0.498		0.255	1	1.097	0.778	8.619	0.125	0.090	-0.197	0.305	-0.027	-0.350	0.088
Telling personal stories in conversation.	1.256	0.869		0.704	0.637	3.992	0.262	8.046	0.154	0.088	-0.310	0.418	-0.282	-0.564	0.198
Getting one's point across in a conversation.	7.190	0.126		1	0.501	2.372	0.499	6.388	0.270	0.100	-0.135	0.307	0.004	-0.430	0.198
Being socially approachable.	7.190	0.126		1	0.501	1.097	0.778	11.392	0.044*	0.079	-0.224	0.323	0.113	-0.037	0.275
Generally saying the right thing at the right time in conversations.	7.715	0.103		0.632	1	1.423	0.700	10.116	0.072	0.047	-0.288	0.274	0.034	-0.380	0.220
Thanking.	7.400	0.116		0.548	0.501	4.070	0.254	2.109	0.834	0.090	-0.164	0.315	0.113	-0.105	0.308
Greeting others.	1.162	0.884		1	1	2.067	0.559	8.477	0.132	0.027	-0.80	0.106	0.020	-0.113	0.088
Being relaxed and comfortable when talking to others.	7.089	0.131		1	0.366	1.292	0.731	1.893	0.864	0.101	-0.148	0.335	-0.010	-0.504	0.237
Conveying confidence.	7.426	0.115		1	1	2.608	0.456	5.838	0.322	-0.146	-0.614	0.269	-0.467	-0.887	0.179
Empathising with others.	7.716	0.103		0.632	1	1.423	0.700	10.116	0.072	0.103	-0.167	0.305	0.111	-0.068	0.255
Validating and acknowledging others.	7.716	0.103		0.632	1	1.423	0.700	10.116	0.072	0.047	-0.251	0.271	0.034	-0.380	0.220
Showing interest in others during conversations.	7.089	0.131		1	0.366	1.292	0.731	6.897	0.228	0.152	-0.024	0.367	0.095	-0.065	0.367
Disclosing an appropriate level of personal information in conversations.	6.691	0.153		0.622	0.041*	3.712	0.294	5.904	0.316	0.258*	0.079	0.453	0.126	-0.150	0.330
Asking for clarification in conversational incomprehension.	6.975	0.137		1	1	3.701	0.296	9.877	0.079	0.111*	0.183	0.307	0.187	-0.012	0.420
Verifying comprehension in conversations.	6.691	0.153		1	1	3.170	0.366	8.969	0.110	0.048	-0.287	0.257	0.129	-0.100	0.312

Repeating/ restating information to clarify conversational incomprehension.	7.388	0.117		0.669	0.603	1.185	0.757	8.534	0.129	-0.106	-0.545	0.207	-0.304	-0.628	0.251
Paraphrasing (rephrasing) information to clarify conversational incomprehension.	5.862	0.210		0.660	1	6.071	0.108	10.908	0.053	-0.187	-0.618	0.141	-0.346	-0.704	0.155
Explaining to clarify conversational incomprehension.	6.401	0.171		1	1	3.080	0.379	10.908	0.053	-0.171	-0.632	0.170	-0.346	-0.761	0.221
MOTOR SPEECH															
Speaking and pronouncing words clearly so that others can understand you.	7.990	0.092		0.539	0.515	3.114	0.374	6.863	0.231	-0.301	-0.827	0.396	-0.453	-0.929	0.261
Speaking fluently.	7.393	0.117		0.139	1	9.865	0.020*	6.863	0.231	-0.341	-0.762	0.325	-0.427	-0.867	0.180
Using voice for emphasis e.g. Speed, pitch, volume.	7.756	0.101		1	1	3.475	0.324	5.798	0.326	-0.097	-0.536	0.469	-0.329	-0.659	0.178
Using good voice projection to make public announcements and broadcasts.	3.561	0.469		0.694	1	5.872	0.118	12.222	0.032*	-0.280	-0.613	0.201	-0.311	-0.597	0.108

* $p < 0.05$

[a] Chi square conducted as less than 20% of expected frequencies were below 5

[b] Fisher's Exact significance two sided test

APPENDIX 9

Table C. Post Log and Square Root Transformation Skewness and Kurtosis

	Log transformation					Square root transformation				
	M	*SD*	Skewness (SE = 0.140)	Kurtosis (SE = 0.279)	Shapiro-Wilk *W*	*M*	*SD*	Skewness (SE = 0.140)	Kurtosis (SE = 0.279)	Shapiro-Wilk *W*
1. Conveying information to others	0.15	0.17	0.535	-0.959	0.353	1.21	0.25	0.838	0.273	0.723
2. Initiating open discussion	0.21	0.20	0.215	-1.100	0.275	1.31	0.30	0.566	-0.293	0.816
3. Participating in discussions	0.24	0.20	0.042	-1.137	0.251	1.35	0.31	0.391	-0.535	0.839
4. Explaining simple facts	0.20	0.19	0.172	-1.156	0.282	1.29	0.28	0.501	-0.338	0.801
5. Explaining difficult subject matter	0.25	0.20	0.013	-0.999	0.256	1.37	0.31	0.425	-0.282	0.845
6. Giving clear instructions	0.20	0.19	0.235	-1.129	0.288	1.29	0.29	0.573	-0.237	0.801
7. Responding verbally to instructions	0.22	0.19	0.059	-0.995	0.281	1.32	0.29	0.455	-0.148	0.820
8. Persuading or convincing others to consider different options	0.26	0.20	-0.139	-1.166	0.269	1.38	0.30	0.177	-0.842	0.850
9. Questioning or raising doubts	0.31	0.20	-0.228	-0.814	0.247	1.46	0.33	0.213	-0.498	0.885
10. Reporting problems	0.24	0.21	0.098	-1.184	0.252	1.36	0.32	0.436	-0.612	0.843
11. Requesting feedback	0.24	0.20	0.120	-1.133	0.251	1.35	0.32	0.469	-0.537	0.839
12. Giving feedback	0.22	0.20	0.239	-1.261	0.284	1.32	0.32	0.526	-0.693	0.822
13. Providing verification or confirming	0.23	0.19	0.060	-1.207	0.263	1.33	0.30	0.377	-0.618	0.828
14. Agreeing	0.31	0.19	-0.425	-0.657	0.257	1.47	0.31	0.013	-0.393	0.873
15. Asking for opinions	0.26	0.20	-0.059	-0.941	0.277	1.38	0.31	0.351	-0.400	0.853
16. Expressing ideas and opinions	0.23	0.19	0.059	-1.067	0.282	1.33	0.29	0.426	-0.360	0.824
17. Exchanging ideas and opinions with others	0.23	0.18	-0.043	-1.070	0.303	1.33	0.28	0.309	-0.438	0.816
18. Answering questions	0.21	0.19	0.211	-1.116	0.280	1.30	0.29	0.557	-0.267	0.809
19. Asking appropriate questions for specific information	0.20	0.18	0.109	-1.332	0.283	1.29	0.28	0.368	-0.787	0.801
20. Establishing constructive and cooperative	0.20	0.19	0.167	-1.358	0.289	1.30	0.29	0.416	-0.853	0.806

working relationships with others										
21. Maintaining interpersonal relationships	0.21	0.19	0.138	-1.133	0.271	1.31	0.29	0.472	-0.457	0.816
22. Building trust	0.19	0.19	0.281	-1.174	0.297	1.28	0.28	0.581	-0.441	0.799
23. Joking/using humour	0.29	0.21	-0.058	-0.997	0.236	1.43	0.35	0.353	-0.555	0.875
24. Networking	0.27	0.21	-0.020	-1.129	0.235	1.40	0.34	0.348	-0.638	0.863
25. Resolving conflicts	0.28	0.21	-0.198	-1.168	0.237	1.42	0.33	0.131	-0.852	0.867
26. Handling customers/client, or line–manager complaints	0.25	0.23	0.328	-1.007	0.250	1.39	0.38	0.720	-0.348	0.834
27. Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers (Smalltalk)	0.24	0.21	0.109	-1.175	0.254	1.36	0.33	0.457	-0.539	0.842
28. Getting one's point across in a conversation	0.23	0.18	-0.143	-1.106	0.297	1.34	0.27	0.190	-0.528	0.816
29. Generally saying the right thing at the right time and conversations	0.29	0.19	-0.279	-0.911	0.266	1.43	0.31	0.111	-0.571	0.867
30. Being socially perceptive and sensitive to the feelings of others	0.23	0.18	-0.058	-1.040	0.300	1.34	0.28	0.311	-0.380	0.823
31. Adapting spoken language when interacting with different cultures	0.29	0.20	-0.167	-0.851	0.256	1.44	0.33	0.270	-0.459	0.876
32. Thanking	0.17	0.19	0.562	-0.803	0.327	1.25	0.29	0.926	0.392	0.768
33. Greeting others	0.15	0.19	0.827	-0.383	0.357	1.22	0.29	1.216	1.118	0.733
34. Being relaxed and comfortable when talking to others	0.20	0.19	0.340	-0.950	0.291	1.29	0.30	0.734	0.166	0.798
35. Conveying confidence	0.19	0.19	0.435	-0.825	0.303	1.27	0.29	0.848	0.473	0.783
36. Empathising with others	0.23	0.21	0.230	-1.090	0.267	1.34	0.33	0.599	-0.300	0.830
37. Validating and acknowledging others	0.21	0.18	0.165	-0.799	0.304	1.30	0.28	0.634	0.487	0.788
38. Showing interest in others during conversations	0.23	0.18	0.006	-0.760	0.301	1.33	0.27	0.485	0.358	0.806
39. Disclosing an appropriate level of personal	0.35	0.21	-0.338	-0.592	0.218	1.54	0.35	0.146	-0.518	0.898

information conversations										
40. Standing up for oneself	0.24	0.20	0.072	-1.095	0.253	1.36	0.32	0.440	-0.507	0.846
41. Asking for clarification in conversational incomprehension	0.23	0.18	0.041	-0.774	0.297	1.33	0.28	0.523	0.370	0.809
42. Verifying comprehension in conversations.	0.24	0.18	-0.073	-0.727	0.286	1.35	0.28	0.412	0.246	0.821
43. Repeating/ restating information to clarify conversational incomprehension	0.25	0.19	-0.124	-0.863	0.293	1.37	0.29	0.305	-0.172	0.836
44. Paraphrasing (rephrasing) information to clarify conversational incomprehension	0.28	0.20	-0.065	-0.754	0.273	1.41	0.32	0.418	-0.126	0.859
45. Explaining to clarify conversational incomprehension	0.26	0.19	-0.048	-0.677	0.294	1.38	0.30	0.457	0.185	0.835
46. Calling the supervisor for help if required.	0.27	0.21	0.095	-0.979	0.232	1.40	0.35	0.528	-0.308	0.856
47. Offering help.	0.17	0.18	0.474	-0.957	0.328	1.24	0.27	0.809	0.181	0.762
48. Providing guidance/ advice.	0.17	0.18	0.418	-0.991	0.319	1.25	0.27	0.765	0.194	0.770
49. Providing personal assistance, emotional support, or other personal care to others.	0.22	0.21	0.352	-1.004	0.275	1.33	0.34	0.731	-0.178	0.822
50. Consulting co-workers.	0.23	0.19	0.036	-0.944	0.277	1.34	0.29	0.460	-0.030	0.824
51. Teaching/ Coaching/ Mentoring others.	0.23	0.21	0.267	-1.047	0.263	1.35	0.34	0.648	-0.275	0.833
52. Speaking and pronouncing words clearly so that others can understand you.	0.20	0.19	0.270	-0.982	0.283	1.29	0.29	0.661	0.093	0.801
53. Speaking fluently.	0.19	0.19	0.357	-1.092	0.307	1.27	0.28	0.677	-0.182	0.788
54. Using voice for emphasis e.g. speed, pitch, volume.	0.24	0.20	0.164	-0.978	0.246	1.36	0.33	0.584	-0.142	0.838
55. Listening with	0.21	0.19	0.186	-1.159	0.276	1.30	0.29	0.504	-0.467	0.813

full attention.										
56. Active listening: taking time to understand the points being made and asking appropriate questions.	0.22	0.19	0.094	-1.071	0.289	1.31	0.28	0.459	-0.278	0.813
57. Listening for main ideas	0.22	0.19	0.101	-0.996	0.283	1.32	0.29	0.504	-0.056	0.815
58. Understanding routine work-related discussions.	0.22	0.18	0.074	-1.087	0.277	1.31	0.28	0.439	-0.225	0.812
59. Understanding complex discussions, including technical subjects in own field and factual reports.	0.22	0.20	0.325	-0.802	0.265	1.33	0.32	0.790	0.358	0.812
60. Understanding familiar work-related messages and instructions.	0.21	0.19	0.117	-1.046	0.287	1.31	0.28	0.503	-0.055	0.804
61. Understanding complex long verbal instructions	0.25	0.19	0.020	-0.708	0.293	1.36	0.30	0.524	0.274	0.826
62. Understanding feedback received.	0.20	0.17	-0.035	-1.389	0.299	1.29	0.25	0.186	-1.028	0.788
63. Understanding differences in style and shifts in register e.g. formal language.	0.25	0.20	0.056	-0.968	0.257	1.38	0.32	0.482	-0.240	0.848
64. Understanding what the communicative intent of a speaker is e.g. persuasion, directing etc.	0.24	0.19	0.013	-1.079	0.272	1.35	0.30	0.386	-0.402	0.836
65. Understanding conversational inferences.	0.25	0.19	-0.021	-0.697	0.290	1.36	0.29	0.478	0.228	0.828
66. Understanding cultural norms.	0.26	0.19	-0.181	-1.084	0.276	1.38	0.30	0.165	-0.642	0.844
67. Understanding sarcasm.	0.27	0.21	0.045	-0.993	0.237	1.41	0.35	0.465	-0.412	0.863
68. Understanding jokes, riddles, and humour.	0.24	0.22	0.270	-1.024	0.253	1.37	0.36	0.665	-0.294	0.838
69. Understanding metaphors, similes, idioms.	0.24	0.22	0.260	-0.962	0.250	1.36	0.35	0.680	-0.149	0.836

Note. All Shapiro-Wilk values were significant at $\alpha = 0.05$

APPENDIX 10

Table D. 69 Item Six Factor Structure: Rotated Factor Loadings using Tandem II-T Oblique Rotation

Item	Factor					
	1	2	3	4	5	6
Factor 1: Receptive Language						
53. Speaking fluently [a]	.655					
54. Using voice for emphasis e.g. speed, pitch, volume [a]	.651					
52. Speaking and pronouncing words clearly so that others can understand you [a]	.642					
55. Listening with full attention	.635					
56. Active listening: taking time to understand the points being made and asking appropriate questions	.593					
63. Understanding differences in style and shifts in register e.g. formal language	.586					
64. Understanding what the communicative intent of the speaker is e.g. persuasion, directing etc	.578					
57. Listening from main ideas	.577					
61. Understanding complex long verbal instructions	.520					
62. Understanding feedback received	.486					
58. Understanding routine work–related discussions	.486					
59. Understanding complex discussions, including technical subjects in own field and factual reports	.478					
Factor 2: Higher Order Language						
68. Understanding jokes, riddles and humour		.832				
67. Understanding sarcasm		.814				
69. Understanding metaphors, similes, idioms (laughter is the best medicine)		.795				
23. Joking/using humour		.622				
66. Understanding cultural norms		.529				
65. Understanding conversational inferences [b]	.495	.529				
39. Disclosing an appropriate level of personal information conversations		.493				
27. Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers (Smalltalk)		.478				
Factor 3: Pragmatic Skills and Relational Skills						
33. Greeting others			.788			
32. Thanking			.728			
36. Empathising with others			.628			
37. Validating and acknowledging others			.616			
34. Being relaxed and comfortable when talking to others			.585			
30. Being socially perceptive and sensitive to the feelings of others			.571			
22. Building trust			.563			
21. Maintaining interpersonal relationships			.556			
20. Establishing constructive and cooperative working relationships with others			.522			
31. Adapting spoken language when interacting with different cultures			.506			
38. Showing interest in others during conversations			.482			
35. Conveying confidence			.472			
29. Generally saying the right thing at the right time and conversations			.419			
Factor 4: Caring and Help						
48. Providing guidance/advice				.624		
50. Consulting co-workers				.599		
47. Offering help				.574		
46. Calling the supervisor for help if required				.543		

49. Providing personal assistance, emotional support, or other personal care to others				.537		
10. Reporting problems [b]				.489	.410	
13. Providing verification or confirming [a]				.478		
26. Handling customers/client, or line–manager complaints [a]				.451		
51. Teaching/Coaching/Mentoring others				.447		
Factor 5: Expressive Language						
16. Expressing ideas and opinions					.715	
17. Exchanging ideas and opinions with others					.652	
3. Participating in discussions					.637	
18. Answering questions					.603	
15. Asking for opinions					.580	
2. Initiating open discussion					.560	
5. Explaining difficult subject matter					.555	
1. Conveying information to others					.552	
8. Persuading or convincing others to consider different options					.522	
19. Asking appropriate questions for specific information					.521	
4. Explaining simple facts [b]	.417				.504	
11. Requesting feedback [b]				.482	.485	
9. Questioning or raising doubts					.467	
6. Giving clear instructions [b]	.428				.459	
12. Giving feedback [b]				.416	.450	
28. Getting one's point across in a conversation					.431	
24. Networking					.417	
Factor 6: **Conversational Repair**						
42. Verifying comprehension in conversations						.776
43. Repeating/restating information to clarify conversational incomprehension						.731
44. Paraphrasing (rephrasing) information to clarify conversational incomprehension						.703
41. Asking for clarification in conversational incomprehension						.700
45. Explaining to clarify conversational incomprehension						.683
60. Understanding familiar work–related messages and instructions [a]						.577
40. Standing up for oneself [a]						.500

[a] Unclear theoretical interpretability

[b] Cross loading items

Non-loading items deleted (Items: 7, 14, and 25)

APPENDIX 11

Table E. 69 Item Seven Factor Structure: Rotated Factor Loadings using Tandem II-T Oblique Rotation

Item	Factor						
	1	2	3	4	5	6	7
Factor 1: Receptive Language							
53. Speaking fluently [a]	.632						
52. Speaking and pronouncing words clearly so that others can understand you [a]	.626						
54. Using voice for emphasis e.g. speed, pitch, volume [a]	.624						
55. Listening with full attention	.624						
56. Active listening: taking time to understand the points being made and asking appropriate questions	.583						
63. Understanding differences in style and shifts in register e.g. formal language [b]	.555	.435					
57. Listening from main ideas	.552						
64. Understanding what the communicative intent of the speaker is e.g. persuasion, directing etc	.542						
61. Understanding complex long verbal instructions	.485						
58. Understanding routine work–related discussions [b]	.467						.438
59. Understanding complex discussions, including technical subjects in own field and factual reports [b]	.446						.423
Factor 2: Higher Order Language							
67. Understanding sarcasm		.819					
68. Understanding jokes, riddles and humour		.816					
69. Understanding metaphors, similes, idioms (laughter is the best medicine)		.789					
65. Understanding conversational inferences [b]	.444	.598					
66. Understanding cultural norms		.584					
39. Disclosing an appropriate level of personal information conversations		.519					
Factor 3: Pragmatic Skills and Relational Skills							
33. Greeting others			.768				
32. Thanking			.742				
36. Empathising with others [b]			.583	.411			
30. Being socially perceptive and sensitive to the feelings of others			.580				
31. Adapting spoken language when interacting with different cultures			.569				
34. Being relaxed and comfortable when talking to others			.566				
37. Validating and acknowledging others			.556	.427			
22. Building trust			.518				
21. Maintaining interpersonal relationships			.496				
20. Establishing constructive and cooperative working relationships with others [b]			.477		.400		
35. Conveying confidence			.455				
29. Generally saying the right thing at the right time and conversations			.438				
Factor 4: Caring and Help							
49. Providing personal assistance, emotional support, or other personal care to others				.685			
51. Teaching/Coaching/Mentoring others				.662			
48. Providing guidance/advice				.653			
50. Consulting co-workers				.624			
47. Offering help				.546			

23. Joking/using humour [a b]		.445		.522			
27. Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers (Smalltalk)				.491			
38. Showing interest in others during conversations [b]			.400	.467			
Factor 5: Expressive Language							
3. Participating in discussions					.694		
17. Exchanging ideas and opinions with others					.663		
2. Initiating open discussion					.654		
16. Expressing ideas and opinions					.646		
4. Explaining simple facts					.601		
18. Answering questions					.546		
5. Explaining difficult subject matter					.538		
15. Asking for opinions					.487		
1. Conveying information to others					.480		
19. Asking appropriate questions for specific information					.480		
8. Persuading or convincing others to consider different options [b]					.438		.431
6. Giving clear instructions [b]	.414				.438		
9. Questioning or raising doubts					.419		
28. Getting one's point across in a conversation					.404		
Factor 6: Conversational Repair							
42. Verifying comprehension in conversations						.765	
43. Repeating/restating information to clarify conversational incomprehension						.739	
44. Paraphrasing (rephrasing) information to clarify conversational incomprehension						.711	
45. Explaining to clarify conversational incomprehension						.696	
41. Asking for clarification in conversational incomprehension						.668	
60. Understanding familiar work–related messages and instructions [a b]						.539	.417
40. Standing up for oneself [a]						.484	
Factor 7: Resolving							
11. Requesting feedback							.686
13. Providing verification or confirming							.620
12. Giving feedback							.613
10. Reporting problems							.606
26. Handling customers/client, or line–manager complaints							.531
62. Understanding feedback received [a b]	.463						.474
46. Calling the supervisor for help if required							.403

[a] Unclear theoretical interpretability

[b] Cross loading items

Non-loading items deleted (Items: 7, 14, 24, and 25)

APPENDIX 12

Table F. 69 Item Eight Factor Structure: Rotated Factor Loadings using Tandem II-T Oblique Rotation

Item	Factor							
	1	2	3	4	5	6	7	8
Factor 1: Receptive Language								
55. Listening with full attention	.606							
52. Speaking and pronouncing words clearly so that others can understand you [a]	.594							
53. Speaking fluently [a b]	.592		.498					
54. Using voice for emphasis e.g. speed, pitch, volume [a]	.591							
56. Active listening: taking time to understand the points being made and asking appropriate questions	.573							
63. Understanding differences in style and shifts in register e.g. formal language	.566							
57. Listening from main ideas	.549							
64. Understanding what the communicative intent of the speaker is e.g. persuasion, directing etc	.545							
61. Understanding complex long verbal instructions	.500							
58. Understanding routine work–related discussions [b]	.477						.418	
62. Understanding feedback received [b]	.461						.452	
59. Understanding complex discussions, including technical subjects in own field and factual reports [b]	.454						.407	
Factor 2: Higher Order Language								
68. Understanding jokes, riddles and humour		.826						
67. Understanding sarcasm		.824						
69. Understanding metaphors, similes, idioms (laughter is the best medicine)		.786						
65. Understanding conversational inferences [b]	.453	.563						
66. Understanding cultural norms		.529						
23. Joking/using humour [b]		.512		.440				
39. Disclosing an appropriate level of personal information conversations		.469						
Factor 3: Relational Skills								
22. Building trust a			.682					
21. Maintaining interpersonal relationships			.680					
24. Networking			.661					
20. Establishing constructive and cooperative working relationships with others			.614					
25. Resolving conflicts			.531					
35. Conveying confidence			.448					
Factor 4: Caring and Help								
48. Providing guidance/advice				.677				
49. Providing personal assistance, emotional support, or other personal care to others				.673				
51. Teaching/Coaching/Mentoring others				.652				
50. Consulting co-workers				.606				
47. Offering help				.557				
38. Showing interest in others during conversations [b]				.512				.505
27. Engaging in informal social conversations with colleagues, team members, supervisors, and clients/customers (Smalltalk)				.430				

Factor 5: Expressive Language								
3. Participating in discussions					.675			
4. Explaining simple facts					.664			
2. Initiating open discussion					.651			
17. Exchanging ideas and opinions with others					.622			
16. Expressing ideas and opinions					.599			
5. Explaining difficult subject matter					.595			
18. Answering questions					.592			
1. Conveying information to others					.512			
15. Asking for opinions					.478			
19. Asking appropriate questions for specific information					.463			
8. Persuading or convincing others to consider different options [b]					.445		.419	
6. Giving clear instructions [b]					.433			
9. Questioning or raising doubts					.426			
Factor 6: Conversational Repair								
42. Verifying comprehension in conversations						.750		
43. Repeating/restating information to clarify conversational incomprehension						.736		
44. Paraphrasing (rephrasing) information to clarify conversational incomprehension						.702		
45. Explaining to clarify conversational incomprehension						.679		
41. Asking for clarification in conversational incomprehension						.650		
60. Understanding familiar work–related messages and instructions [ab]						.522	.406	
40. Standing up for oneself						.462		
Factor 7: Resolving								
11. Requesting feedback							.678	
13. Providing verification or confirming							.596	
12. Giving feedback							.594	.
10. Reporting problems							.593	
26. Handling customers/client, or line–manager complaints							.525	
Factor 8: Pragmatic Skills								
33. Greeting others								.686
32. Thanking								.683
36. Empathising with others [b]				.442				.679
37. Validating and acknowledging others [b]				.451				.619
31. Adapting spoken language when interacting with different cultures								.596
30. Being socially perceptive and sensitive to the feelings of others								.566
34. Being relaxed and comfortable when talking to others								.530
29. Generally saying the right thing at the right time and conversations								.497

[a] Unclear theoretical interpretability

[b] Cross loading items

Non-loading items deleted (Items: 7, 14, 28, and 46).

APPENDIX 13

Table G. 63 Item Eight Factor Structure: Rotated Factor Loadings using Tandem II-T Oblique Rotation

Item	Factor							
	1	2	3	4	5	6	7	8
Factor 1: Receptive Language								
54. Using voice for emphasis e.g. speed, pitch, volume	.595							
63. Understanding differences in style and shifts in register e.g. formal language [b]	.578	.439						
52. Speaking and pronouncing words clearly so that others can understand you [b]	.574							.464
56. Active listening: taking time to understand the points being made and asking appropriate questions	.562							
55. Listening with full attention	.553							
57. Listening from main ideas	.511							
64. Understanding what the communicative intent of the speaker is e.g. persuasion, directing etc [b]	.502	.428						
61. Understanding complex long verbal instructions	.488							
59. Understanding complex discussions, including technical subjects in own field and factual reports	.449							
62. Understanding feedback received [b]	.421				.413			
Factor 2: Higher Order Language								
67. Understanding sarcasm		.848						
68. Understanding jokes, riddles and humour		.824						
69. Understanding metaphors, similes, idioms (laughter is the best medicine)		.789						
65. Understanding conversational inferences [b]	.408	.623						
66. Understanding cultural norms		.585						
39. Disclosing an appropriate level of personal information conversations		.468						
Factor 3: Pragmatics								
36. Empathising with others [b]			.731	.401				
37. Validating and acknowledging others [b]			.647	.408				
33. Greeting others [b]			.642					.521
32. Thanking [b]			.626					.452
30. Being socially perceptive and sensitive to the feelings of others			.603					
31. Adapting spoken language when interacting with different cultures			.574					
38. Showing interest in others during conversations [b]			.545	.450				
34. Being relaxed and comfortable when talking to others [b]			.475					.452
29. Generally saying the right thing at the right time and conversations			.453					
Factor 4: Caring and Help								
48. Providing guidance/advice				.705				
49. Providing personal assistance, emotional support, or other personal care to others				.647				
50. Consulting co-workers				.638				
51. Teaching/Coaching/Mentoring others				.619				
47. Offering help				.608				
46. Calling the supervisor for help if required				.491				
Factor 5: Resolving								

11. Requesting feedback					.690			
26. Handling customers/client, or line–manager complaints					.639			
12. Giving feedback					.636			
13. Providing verification or confirming					.577			
25. Resolving conflicts					.565			
10. Reporting problems					.502			
Factor 6: Conversational Repair								
42. Verifying comprehension in conversations						.737		
43. Repeating/restating information to clarify conversational incomprehension						.734		
44. Paraphrasing (rephrasing) information to clarify conversational incomprehension						.710		
45. Explaining to clarify conversational incomprehension						.677		
41. Asking for clarification in conversational incomprehension						.630		
40. Standing up for oneself						.468		
Factor 7: Expressive Language								
17. Exchanging ideas and opinions with others							.671	
16. Expressing ideas and opinions							.653	
18. Answering questions							.650	
3. Participating in discussions							.599	
4. Explaining simple facts [b]	.473						.589	
2. Initiating open discussion							.544	
5. Explaining difficult subject matter							.535	
15. Asking for opinions							.515	
19. Asking appropriate questions for specific information							.495	
9. Questioning or raising doubts							.487	
1. Conveying information to others							.476	
8. Persuading or convincing others to consider different options [b]					.431		.455	
28. Getting one's point across in a conversation							.428	
6. Giving clear instructions [b]	.402						.404	
Factor 8: Relational Skills								
22. Building trust								.656
53. Speaking fluently [b]	.553							.599
24. Networking [b]					.428			.568
21. Maintaining interpersonal relationships								.558
35. Conveying confidence								.556
20. Establishing constructive and cooperative working relationships with others								.484

[a] Unclear theoretical interpretability

[b] Acceptable cross loading items which are theoretical interpretability

Non-loading item deleted (Item: 27).

APPENDIX 14

Table H. 63 Item Eight Factor SOFCD Structure: Boot-Strapped Inter-Factor Correlations

	Higher order	Pragmatics	Caring/ Help	Resolving	Repair	Expressive	Relational skills
Receptive	0.507*	0.539*	0.569*	0.555*	0.655*	0.688*	0.657*
Higher order		0.443*	0.457*	0.071	0.331*	0.207*	0.253*
Pragmatics			0.640*	0.364*	0.399*	0.466*	0.670*
Caring/Help				0.473*	0.474*	0.451*	0.521*
Resolving					0.478*	0.690*	0.579*
Repair						0.594*	0.584*
Expressive							0.659*