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THE DEVELOPMENT AND VALIDATION OF THE COMMUNICATING-FOR-CHANGE QUESTIONNAIRE

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ABSTRACT

The aim of this study was to develop and validate a questionnaire that measures the effectiveness of communication during organisational change interventions. A draft questionnaire was completed by a sample of convenience comprising 521 participants. The questionnaire contained 109 items in question format with a Likert-type response scale anchored at the extreme ends. The data was factor analysed and an iterative item analysis was executed. The results yielded a single scale with a Cronbach Alpha coefficient of 0,99. It is concluded, therefore, that the conceptualised domain of "communicating-for-change" could be measured successfully through the use of the instrument developed in this study.

OPSOMMING

Die doel van hierdie studie was die ontwikkeling en validering van 'n vraelys wat die doeltreffendheid van kommunikasie tydens organisatoriese veranderingsintervensies meet. 'n Konsepvraelys is op 'n geleentheidsteekproef van 521 deelnemers afgeneem. Die vraelys het bestaan uit 109 items in vraagformaat met 'n Likert-tipe responsskaal wat by die ekstreme pole geanker is. Die data is gefaktoranaliseer en 'n iteratiewe itemontleding is uitgevoer. Die resultate het 'n enkele skaal met 'n Cronbach Alfa koëffisient van 0,99 opgelewer. Daar is derhalwe aanvaar dat die gekonseptualiseerde domein van "kommunikasie-vir-verandering" suksesvol met die instrument wat in die studie ontwikkel is, gemeet kon word.

Motivation for the investigation

Change, as a constant in today's business environment, seems to touch on every aspect of organisational life. According to Pendlebury, Grouard and Meston (1998) no business can escape the need for change as it evolves in the context of a more rapidly changing environment. Within this realm, organisations can either initiate or submit to change. To be able to stay in business, however, change will have to be accommodated, one way or another. Given the premise that change is unavoidable, it would make sense to search for ways to manage change in a manner that best serves the interests of the organisation. Change, of whatever nature, puts great strain on a changing organisation where the most taxing aspects of major organisational change are often found to be the people and culture dimensions. Pendlebury et al. (1998) stated that change programs of any significant scale are simply threatening to most people as they foster a variety of anxieties.

Literature on change management strategies and methodologies amplifies the importance of *effective communication*, implying that appropriate communication during the change process could add greatly towards the success of the change intervention. This statement is substantiated throughout the literature review to follow. The study built upon the assumption that effective communication is a crucial part of a successful change process and that aspects within the changing organisation may either facilitate or impede effective change communication. The primary aim of this research, then, was the development and validation of a measuring instrument that would measure the effectiveness of change communication in an organisational context. To achieve this goal, a conceptual model delineating the domain of communicating-for-change had to be constructed and a questionnaire had to be developed to comprehensively measure the effectiveness of the change communication process across the specified domain.

Change management in an organisational context

Change management may be defined as the transforming of the organisation so that it is aligned with the execution of a chosen business strategy (Digrius, 1996). According to this view, change management implies the following:

The management of the human element in a large-scale change project such as a merger, business process reengineering process or even an information technology initiative. It includes activities such as:

- culture change (values, beliefs and attitudes),
- developing reward systems (measurement and appropriate incentives),
- organisational design,
- stakeholder management,
- human resource policies and procedures,
- executive coaching,
- change leadership training,
- team building,
- communication planning,
- and execution.

Pendlebury et al. (1998) argued that change is not a "natural" condition in business, because businesses are designed to work, to satisfy customers' needs, to produce, and not to change. Although change is important for organisational survival, it necessitates destabilisation of the *status quo*, which may impact negatively on the short-term performance of the organisation. It is consequently necessary to manage this change and to return to a situation of optimal performance, as soon as possible (Pendlebury et al., 1998). It can, therefore, be argued that change is an important management issue. In this respect, many models of change management exist. As a baseline for this study, three prominent models of organisational change management are briefly reviewed (Cummings & Worley, 1997):

- The Change Model of Kurt Lewin
- The Action Research Model and
- The Contemporary Action Research Model.

The essence of the change model of Kurt Lewin presented in Figure 1, involves a three step change process during which forces maintaining the present organisational behaviour are removed, "old" organisational behaviour is moved to "new" organisational behaviour, values and attitudes, and change is institutionalised by means of supporting mechanisms such as culture, norms, policies and structures.

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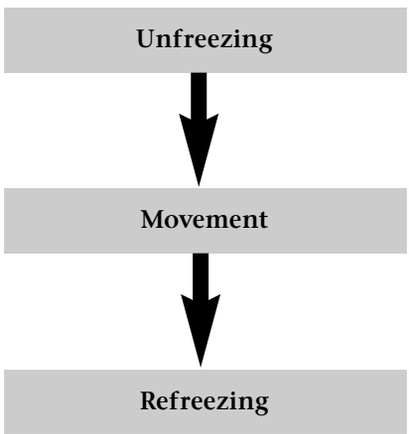

Figure 1: Change model of Kurt Lewin (adapted from cummings & worley, 1997)

Figure 2: Action research model (Adapted from Cummings & Worley, 1997)

The Action Research Model in Figure 2 focuses on change as a cyclical process, where research provides information to guide subsequent action. After change (action), data is gathered to measure and determine the effects of the action and feedback is provided to the organisation to guide new action.

The Contemporary Action Research Model presented in Figure 3 focuses on change in total systems. This model implies the importance of member involvement, of taking a positive approach to change, and of utilising the positive aspects of the current organisation to define what the organisation could look like in the future. In an effort to move the organisation towards its future state, members make changes, assess the results and effect the necessary adjustments.

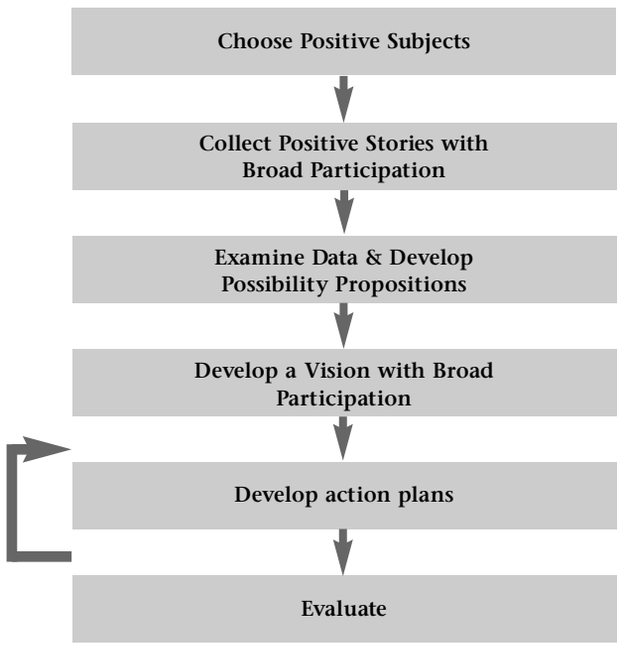

Figure 3: Contemporary action research model (Adapted from Cummings & Worley, 1997)

Within each of the three baseline models of change management mentioned above, the role of communication is apparent. Referring specifically to the work of Kanter, Stein and Jick (1992), Kotter (in Ivancevich & Matteson, 1996), Lidstone (1996) and Pendlebury et al. (1998), it is possible to recognise communication as one of the critical determinants of successful change management interventions (see Table 1).

Determinants of successful change management interventions

Kanter, Stein and Jack (1992), Kotter (in Ivancevich & Matteson, 1996), Lidstone (1996) and Pendlebury et al. (1998) produced studies on the principles of successful change management, which, if compared, strongly suggest the importance of communication in the change management process (see Table 1). Ford and Ford (1995) argued that, whilst communication is only a single step in a multi-stage process within most change models, intentional organisational change and the institutionalisation thereof are primarily the result of change communication.

By integrating the suggested change methodologies inherent to the three change management models mentioned above, a number of determinants of successful change management interventions may be extracted. These specifically include the following: (1) the necessity of top-down, as well as bottom-up, communication; (2) dedicated communication promoting change; (3) formal communication by means of training and the handling of specific issues; and (4) outward communication towards the user and client community. Change communication, in this respect, refers to aspects such as communication to define a new vision, to establish the involvement of staff, to provide training, to handle power issues and to attend to marketing matters. The result of this process of integration may be summarized under a heading: "Drivers for successful change" (see Table 2). It is argued that the summarized framework provides an acceptable description of the aspects that should be in place to facilitate and consolidate successful change interventions.

From the above summary it may be deduced that communication indeed plays a crucial role in facilitating and consolidating change.

TABLE 1
DETERMINANTS OF SUCCESSFUL CHANGE INTERVENTIONS

FIVE PRINCIPLES OF CHANGE MANAGEMENT as applied to transformation to Digital Resources (Lidstone, 1996)	10 KEYS TO SUCCESSFUL CHANGE MANAGEMENT (Pendlebury et al., 1998, p.1)	10 COMMANDMENTS FOR EXECUTING CHANGE (Kanter, Stein & Jack, 1992, p.382)	EIGHT STEPS TO TRANSFORMING YOUR ORGANISATION (John P. Kotter in Ivancevich & Matteson, 1996, p.635)
• Leadership/first impressions. A new leader must arrive with a vision. • Staff involvement in the planning process. • **Communication and trust**. • Training. • Marketing.	• Defining the vision. • Mobilising. • Catalysing. • Steering. • Delivering: implementing the changes by realising the vision. • Obtaining participation. • Handling the emotional dimension: overcoming resistance and mental blockages. • Handling power issues. • Training and coaching. • **Communicating**.	• Analyse the organisation and its need for change. • Create a shared vision and common direction. • Separate from the past. • Create a sense of urgency. • Support a strong leader role. • Line up political sponsorship. • Craft an implementation plan. • Develop enabling structures. • **Communicate, involve people, and be honest**. • Reinforce and institutionalise the change.	• Establishing a sense of urgency. • Forming a powerful guiding coalition. • Creating a vision. • **Communicating the vision**. • Empowering others to act on the vision. • Planning for and creating short-term wins. • Consolidating improvements and producing still more change. • Institutionalising new approaches.

TABLE 2
DRIVERS FOR SUCCESSFUL CHANGE

Compelling Vision	The creation of a compelling future state that energises the organisation.
Transformational Leadership	Exercising the ability to influence an organisation or a group towards the achievement of goals – by means of influencing, motivating, stimulating and individualised consideration.
Transference of the Purpose	The transference and understanding of meaning, by whatever means necessary.
Obtaining Participation	Participation refers to the extent that a person's knowledge, opinions and ideas are included in the transformation/ change process.
Executing the (Change/ Transformation) Purpose	Walking the talk, showing tenacity in the activities that support change and rewarding appropriate behaviour to enhance the probability of that behaviour being repeated.

Communication as a key to successful organisational change

Many authors attest to the view that communication is a crucial link in the total change management process. Both the 1997 and 1998 ProSci Reports (Pro Sci, 1997; Pro Sci, 1998) indicated that the change management activities that had the greatest impact on project success were:

- Open and consistent communication.
- Personnel changes to support the new organisation.
- Support from all levels of management.
- Pre-implementation training of employees.

Shockley-Zalabak (1991) stated that organisational excellence (and by implication: excellent change management) may be enhanced by effective communication, especially where human and technological communication systems within organisations are responsible for creatively solving increasingly complex problems, such as the problems associated with major organisational change. Young and Post (1993) argued that effective communication is vital to any organisation undergoing significant change and that affected employees, teams and stakeholders need information so that they can continually assist the organisation to achieve its objectives.

Communication, according to Plunkett and Attner (1998, p. 351), is the transition of information (data in a coherent, usable form), from one person or group to another with the aim of establishing a common understanding among the parties of each communication. Tosi, Rizzo and Carroll (1996, p. 370) defined effective communication as the degree to which a message is received and understood, and the receiver's reaction to the message corresponds to the sender's *purpose* in sending it. Organisations, according to Tosi et al. (1996, p. 368), are human communities in which the members are tied together in complex relationships where the nature of these relationships is influenced by the quality of communication amongst the members. Within this context the primary purpose of communication is:

- To obtain a common focus or direction among members.
- To integrate the effort of specialists.
- To aid in making high-quality decisions.
- To build a community of employees with high morale and trust among themselves.

In order to better understand the process of communication, a simplified model of communication, adapted from Tosi et al. (1996), indicates the following basic building blocks in communication:

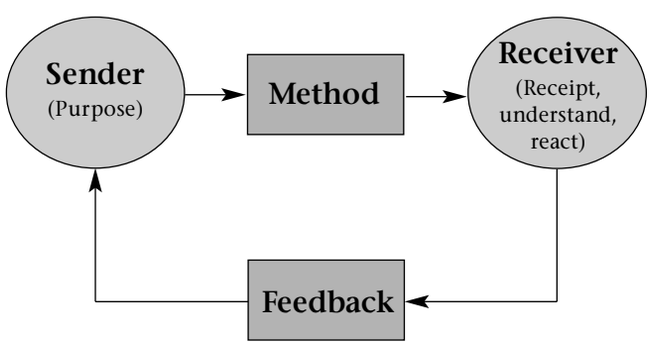

Figure 4: A simplified communication model (adapted from Tosi, Rizzo & Carroll, 1996)

The model in Figure 4 indicates that the transference of meaning (communication) is the process whereby a sender transfers a message, by means of a specific method, to a receiver who needs to receive the message, needs to understand it and needs to react to it in a purposeful manner. Feedback in this context is a mechanism used to ensure that the receiver understands the purpose of the message, before acting.

Transference of meaning, however, is never simplistic. The communication model presented in Figure 5 (Shockley-Zalabak, 1991) depicts a more complex model of communication, indicating that the essence of communication is the transferring of information between two or more

individuals for a specific purpose. In this process of communication words are used to explain, to build realities and to code messages. Sources send messages via a specific medium, to be received by the "other party" or receiver, and to be decoded. When the message is decoded, it can either be understood or misunderstood, from where the whole process can be repeated in the other direction.

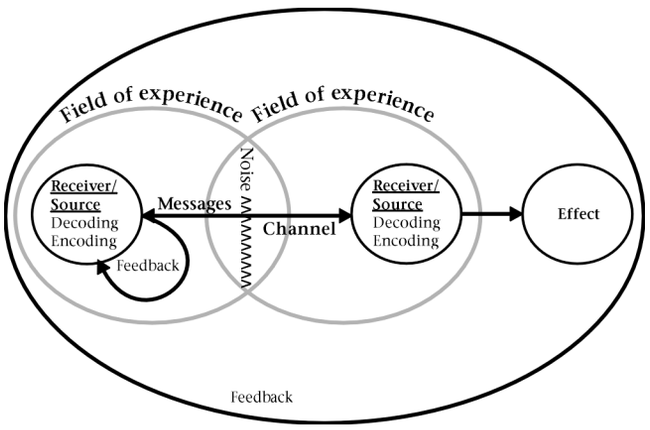

Figure 5: A model of essential components in communication (adapted from Schockley-Zalabak, 1991, p. 25)

According to Shockley-Zalabak (1991) the following elements may be distinguished within the communication process depicted above:

- **Encoding and decoding** which may be influenced by communicative competence (knowledge, sensitivity, skills and values of communicators), past experiences, perception of the competence of others, as well as the communication context.
- **Distortion or noise**, which acts as a barrier to clear communication and contributes to discrepancies between the meaning intended by the source and the meaning assigned by the receiver. Distortion or noise is always present and can range from physical distractions to psychological predispositions, where the type of noise contributes to the meanings assigned to messages received, as well as the encoding of new messages.
- **The channel or the medium** through which the message is transmitted between the source and the receiver. Channels include all five senses, as well as technology used for message transmission. The channel used for transmission can distort messages, both technologically and in sensory reception.
- **Experiences** of all the parties in the communication interaction, implying that each party acts from a specific set of experiences that frames his or her frame of reference. The more common the frame of reference, the easier it is to share similar meanings or construct shared realities.
- **The communication context**, detailing the environment for the communication interaction. The context implies specifics relating to time, place, roles, relationships and status of participants.
- **Communication effect**, implying the result, consequence or outcome of the communication exchange.
- **Feedback**, referring to information that flows between the sender and receiver indicating how the receiver perceives the message. Feedback turns the receiver into a sender of information and vice versa. This serves the purpose of refining the message until a common understanding is achieved.

Change communication can therefore be described as the process, with a variety of elements, through which shared realities are constructed, which are crucial for the management of change. Lasswell (comm2000/textbook/chapter02.html, 3/2/00) added understanding by describing communication as a process of "who says what to whom with what effect".

Within the context of organisational change, communication may then be viewed as the process through which managers give direction and sustain dynamism. Clarity about a vision for the future can only come from the top, and communication is needed to convey this vision to everyone in the organisation (Francis, 1987). Communication brings vision, hope, direction, value, importance and meaning in a language that can be understood. It thus provides the emotional glue that binds people together. According to Alexander (1993) the importance of the need to facilitate information exchange to ensure efficiency in the operation of organisations has made good communication an indispensable management skill. It may be necessary, however, to consider the aspects possibly impacting upon effective communication.

Aspects impacting on effective communication

How well employees understand the rationale for change and how easily they are able to develop the skills necessary to contribute to their organisation's success depend largely on one factor, namely communication, or more specifically, effective communication (Sanchez, 1997). The rationale for identifying those aspects that may inhibit or negatively influence effective communication is, therefore, to prevent change communicators from unknowingly falling pray to these. Aspects impacting on effective communication reflect difficulties intrinsic to most efforts to communicate about complex technical, value-laden and organisational change issues.

There are a number of aspects that can either inhibit or facilitate the effectiveness of communications. According to Tosi et al. (1996) these aspects manifest themselves in individual differences, in the form of communication used, in organisational characteristics, and in communication event characteristics. Developing a synthesis based on the work of Ettore (1995), Risk Communication (2000), Larkin and Larkin (1996), Plunkett and Attner (1998), Rogers and Roethlisberger (1999) and Tosi et al. (1996), the following basic model of the aspects that may affect communication can be compiled:

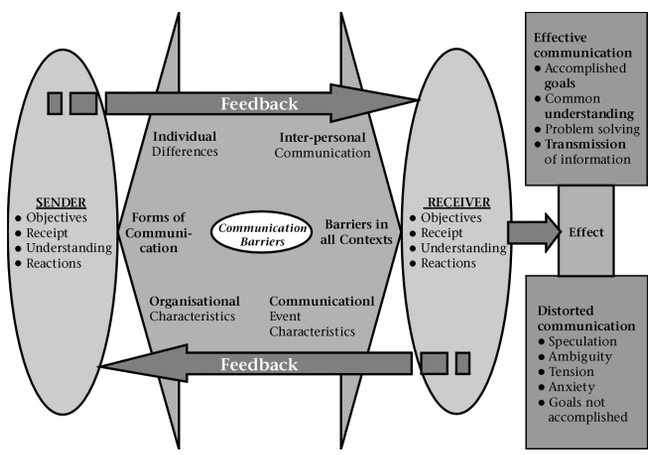

Figure 6: A basic model of aspects that affect communication (adapted from Tosi et al., 1996)

The aspects that may negatively affect communication could be viewed as barriers to effective communication. These barriers may be categorised as follows:

- **Individual differences** relating to variables such as personality, age, gender, race, ethnicity, level of education,

occupational and organisational experience (Tosi et al., 1996).

- **Aspects of communication** such as diction and semantics, expectations of familiarity, source credibility, preconceived notions, differing perceptions, conflicting nonverbal communication, emotions and physical or environmental noise (Plunkett & Attner, 1998).
- **Forms of communication** in respect of which Tosi et al. (1996) concluded that the two most obvious forms are oral and written communication, which may be one-way or interactive. In addition to this, some forms of communication provide for audio or visual communication, where nonverbal communication (e.g. body language) occurs, which can impact upon the reception and perceived meaning of the message.
- **Communication event characteristics** such as time constraints, or the amount and complexity of information being transmitted (Tosi et al., 1996). Comprehension or understanding of a message is complicated when contextual and event specific characteristics impact on a message.
- **Organisational design characteristics** such as level and status differences, organisational complexity, overload, timing, lack of trust and openness, organisational reward systems, communication networks, as well as roles and links. Each of these may have an effect on the nature and flow of information, and thus serve as communication barriers that impact on effective organisational communication. Organisations communicate via formal communication channels (upward, downward and horizontally). These channels serve as message pipelines. Managers have to take the responsibility of creating, using, and keeping open and available these message pipelines for the use of organisation members (Plunkett & Attner, 1998).

It may be said then that barriers to effective communication may be found within individual differences in perception, differences in receptivity, lack of understanding, source credibility, the role of media and societal characteristics (Risk Communication, 2000). Taking into consideration further that communication normally has a specific purpose, like the attainment of organisational goals, a clear result (effect) would indicate if the communication was effective or not. According to Plunkett and Attner (1998) the effect that communication should have in organisations is the attaining of organisational goals, where team members generally engage in either:

- Exchanging views to generate a common understanding.
- Discussing work with communication revolving around getting the job done.
- Deliberating on a problem or issue and how to solve or address it.
- Transmitting information to the group to ensure that everyone gets the same message.

Effective communication is important because ineffective communication could distort the intended message and the sender's objectives with sending the message will not be achieved. Ineffective communication may then lead to the desired objectives not being reached.

By integrating the views on aspects possibly affecting effective communication described above, it may be argued that these aspects can be divided into three broad categories, namely individual aspects, organisational aspects and aspects pertaining to the message itself. Within the three broad categories, six sub categories of aspects that may affect effective communication may be defined. Table 3 provides a framework for categorising the different aspects according to this line of reasoning.

In Table 3 it is indicated that the three primary aspects (individual, organisational and message aspects) may be further categorised into six secondary aspects, aimed at defining the context of the six primary aspects. Both the primary, as well as the secondary, aspects are believed to affect effective communication to a greater or lesser extent. These aspects impact on the transference of meaning and if these aspects succeed in distorting the message and/or the feedback relating to the message, the purpose and objective of the initial message will be negated.

Having now identified both the aspects required for successful organisational change (drivers for change: see Table 2) and those aspects impacting on effective communication (barriers to communication: see Table 3), an integrated model accommodating both sets of aspects may be presented. This integrated change and communication model presents the two sets of aspects in a matrix format depicting the intricate inter-relationships between these two sets of variables (see Figure 7).

TABLE 3
ASPECTS AFFECTING COMMUNICATION EFFECTIVENESS

Individual aspects	**Individual Differences**	Factors such as personality, age, gender, race, ethnicity, education and experience.
	Selective Perception	Receivers selectively see and hear based on their needs, motivation, experience and background. Receivers also project interests and expectations into communications as they decode them.
	Emotions	How the receiver feels at the time of receipt of a message will influence interpretation, e.g. happy, depressed or angry.
	Actions	Non-verbal communication that either supports or contradicts verbal or written communication.
Organisational aspects	**Organisational complexity**	Relates to the organisational structure, hierarchy, span of control, reward systems, etc. that impact on the flow of communication, and which can lead to aspects such as *filtering* or manipulation of information.
Message aspects	**Content, mode and quality of message**	Refers to the actual information being transferred between sender and receiver, and includes variables such the medium or the clarity of the message.

This model served as the theoretical basis for the development of the Communication-for Change questionnaire, by attempting to delineate the domain of "communicating-for-change".

METHOD

Two assumptions were used as a point of departure in this study:

Assumption 1. Effective communication is a key imperative in successful organisational change interventions.

Assumption 2. Aspects pertaining to individual, organisational and message variables may impact upon the effectiveness of the change communication.

Sample

The population used in this study consisted of individuals employed in South African organisations, either in the midst of a large-scale organisational change process, or recently through such a process. Organisations from both the private sector (rendering 65, 8% of the responses), and the public sector (rendering 33,2 % of the responses) were included in the study. Individuals from the Defence, from the Police

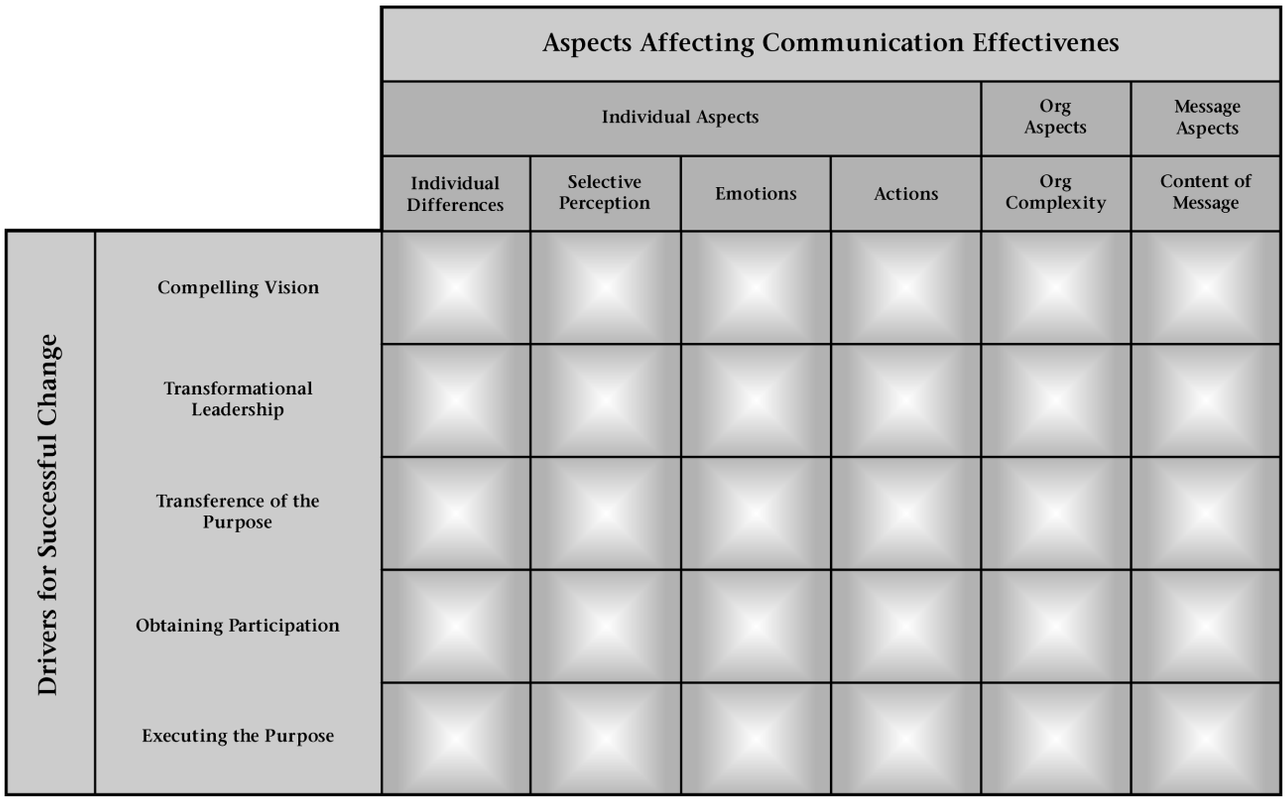

Figure 7: Integrated change and communication model

and from organisations within the communications and manufacturing industries made up the larger portion of the sample.

A sufficiently large sample was targeted, in order to ensure a relatively stable factor structure (Thorndike, 1982). Questionnaires were distributed to 750 individuals across all organisational levels of which 521 usable questionnaires were returned, resulting in a response rate of 69,5%. Participants represented four organisational levels, namely senior management (17,9%), middle management (26,9%), supervisory management (22,1%) and operational staff (33,2%). Participants presented with a mean age of 36,6 years and a mean length of service within the particular organisation of 12,2 years. Male participants made up 74,7% of the sample and female participants 25,3%. In terms of language preference, 48,4% of the participants indicated Afrikaans, 39,5% indicated English and 12,1% indicated another language as their home language. However, the last-mentioned group also indicated English as their preferred language of communication.

The above descriptive statistics of the sample is presented in Table 4.

Measuring Instrument

The following process was followed in developing the Communicating-for-Change instrument:

- Four studies on successful change management were studied and integrated, resulting in the identification of five primary drivers for successful change (see Table 2). These five drivers for change were postulated as one dimension of the domain "communicating-for-change".
- Several studies regarding communication effectiveness were investigated and integrated, resulting in the identification of three primary and six secondary aspects, which may impact effective communication. These aspects were postulated as a second dimension of the domain "communicating-for-change" (see Table 3).
- The results of the above two steps were posted in a matrix format, creating a framework depicting both the above-mentioned dimensions of the domain "communicating-for-change" (see Figure 7).
- Based on the communication literature referenced in the study, a pool of question format items were developed to cover each of the 30 sub dimensions resulting from the process described immediately above. Subject matter experts evaluated the pool of items and only items complying with the criteria for standardised measuring instruments, as described by Schepers (1992), were retained. This process of expert scrutiny resulted in a draft questionnaire consisting of 109 questions, covering each of the 30 sub dimensions of the construct as depicted in Figure 7. The response format of the questionnaire was a seven-point Likert-type intensity scale, anchored at the extreme ends (Schepers, 1992).

The following items are examples of those included in the questionnaire:

- To what extent does communication of the vision take individual differences into consideration?
- How effectively does the communication of the vision promote a common understanding of purpose in the organisation?
- How intense do rank and status differences in the organisation impact negatively on the flow of communication?
- To what extent can management be trusted to practice what they communicate?

Research Procedure

Organisations were approached on an ad hoc basis and invited to take part in the study. A covering letter accompanied all

questionnaires clearly explaining the purpose of the survey. Each organisation identified a contact person responsible for the distribution, collection and return of the questionnaires to the researcher. Contact persons were required to distribute questionnaires across all organisational levels, with the only requirement that of ensuring an adequate level of literacy on the part of the participants. Participation of organisations and individuals were voluntary and individual participants responded anonymously. Confidentiality was set as a non-negotiable requirement.

TABLE 4
BIOGRAPHICAL DATA OF SAMPLE (N = 521)

Industry	N	%
Defence and Policing	144	27,6
Communication	108	20,7
Manufacturing	96	18,4
Education	30	5,8
Consulting services	28	5,4
Financial Services	21	4,0
Mining	16	3,1
Retail	16	3,1
Insurance industry	10	1,9
Agriculture, Forestry and Fishing	8	1,5
Health and Community Services	4	0,8
Construction	4	0,8
Wholesale	4	0,8
Other	32	6,1
Total	521	100
Sector	**N**	**%**
Private Sector	343	65,8
Public Sector	174	33,4
Non-profit organisations	4	0,8
Total	521	100
Organisation Level	**N**	**%**
Operational staff	173	33,2
Middle management	115	26,8
Supervisory management	140	22,1
Senior management	93	17,9
Total	521	100
Gender	**N**	**%**
Male	389	74,7
Female	132	25,3
Total	521	100
Home Language	**N**	**%**
Afrikaans	252	48,4
English	206	39,5
Other	63	12,1
Total	521	100
Years in Organisation	Mean = 12,2	
Age	Mean = 36,6	

Statistical Analysis

The procedure of statistical analysis as proposed by Schepers (1992, pp. 140-143) was used in this study. The Statistical Consultation Service of RAU did all the statistical analyses, using the SPSS statistical package. Principal Factor Analyses were conducted and the NP50 program of the NIPR was used for an iterative item analysis.

RESULTS

In order to counter the possible effects of differential item skewness and the creation of artefactors (Schepers, 1992), the factor analysis was conducted on two levels. Firstly, the 109 items of the questionnaire were intercorrelated. (The matrix will not be reproduced owing to size). Eigenvalues were calculated, and based on Kaiser's (1961) criterion of eigenvalues larger than unity, eight factors were postulated. A Varimax rotation was used to rotate this into a simple structure.

A second level factor analysis was subsequently undertaken by inter-correlating the eight simplified factor scores. The results of the inter-correlations are displayed in Table 5.

TABLE 5
INTERCORRELATION OF SIMPLIFIED FACTOR SCORES (SFS)

SFS	1	2	3	4	5	6	7	8
1	0,503	0,499	0,440	0,412	0,084	0,056	0,056	0,027
2	-0,743	-0,045	0,245	0,603	-0,068	0,000	0,000	0,063
3	0,412	-0,531	-0,350	0,617	-0,123	-0,146	-0,146	-0,072
4	0,151	-0,458	0,701	-0,066	0,093	0,101	0,101	0,275
5	-0,010	0,419	-0,092	0,256	0,080	0,183	0,183	-0,303
6	-0,049	-0,178	-0,126	0,062	0,901	0,313	0,313	-0,121
7	-0,016	0,213	-0,164	0,075	0,343	-0,620	-0,620	0,619
8	0,035	0,077	-0,286	0,080	-0,172	0,670	0,670	0,652

Again eigenvalues were calculated which yielded only one eigenvalue greater than unity (see Table 6). Resultantly, no further rotation was executed and only one scale was postulated.

TABLE 6
EIGENVALUES OF UNREDUCED INTERCORRELATION MATRIX

Root	Eigenvalue	% Variance Explained	Cumulative % Variance
1	4,587	91,746	91,746
2	0,156	3,126	94,872
3	0,120	2,393	97,265
4	0,089	1,777	99,042
5	0,048	0,958	100,00
Trace	5,00		

Significant item loadings were obtained on only five of the eight postulated factors. The factor-loadings in the unrotated factor matrix of the five simplified factors (items included in these five factors are also listed) on the obtained single scale are as follows: (See Table 7).

The subsequent iterative item analysis rendered a Cronbach Alpha coefficient of 0,99.

Item statistics are reported in Table 8.

A closer scrutiny of Table 8 reveals that all item means vary between 4 and 5 with approximate standard deviations varying between 1,1 and 1,8. Although all skewness coefficients are negative, these coefficients vary between slightly negative (-0,2) and highly negative (-1,2). Only forty of the 109 items have Gulliksen reliability coefficients below 1,00 and the largest proportion items have item – test correlations that are higher than 0,7. These coefficients indicate that the high internal consistency of the scale can rather be ascribed to the high reliability and item – test correlation coefficients, than to the common skewness of the items.

TABLE 7
UNROTATED FACTOR MATRIX

Simplified Factors	Number of items	Item	Factor Loadings
1	32	c01, c02, c03, c04, c05, c07, c14, c17, c22, c31, c44, c59, c60, c67, c68, c69, c72, c77, c84, c85, c87, c88, c90, c92, c93, c94, c96, c103, c104, c105, c106	0,946
2	37	c23, c24, c27, c28, c37, c38, c40, c41, c42, c45, c46, c47, c48, c49, c50, c51, c52, c53, c54, c55, c56, c57, c58, c61, c62, c63, c64, 65, c66, c70, c71, c75, c76, c78, c79, c83, c102	0,977
3	20	c33, c34, c35, c36, c43, c73, c74, c80, c81, c82, c89, c91, c97, c98, c99, c100, c101, c107, c108, c109	0,959
4	13	c06, c08, c09, c10, c11, c12, c13, c18, c25, c26, c32, c39, c86	0,916
5	7	c15, c16, c19, c20, c21, c29, c30	0,937

DISCUSSION

This study attempted to explore the domain of "communicating-for-change" with the aim of developing and validating a measuring instrument that would measure the effectiveness of change communication in an organisational context. The results of this attempt yielded a single scale with a Cronbach Alpha coefficient of 0,99, implying high internal consistency and a low error of measurement for the scale.

Three aspects of validity were considered in developing the questionnaire, namely content validity, face validity, and construct validity. Content validity was established by clearly defining the domain of "communicating-for-change as a first step, and thereafter systematically developing items to cover each of the sub domains of the construct as defined. Face validity was established through the process of expert scrutiny, eliminating any unsuitable items. The second level factor analysis, yielding a single scale with a very high internal consistency coefficient, suggests factorial validity – a dimension of construct validity (Allen & Yen, 1997).

It may, therefore, be concluded that the domain of "communicating-for-change" was reliably and validly measured through

TABLE 8
ITEM STATISTICS

Item No.	Mean	Std. Deviation	Skewness	Kurtosis	Item Reliability Index	Item – test Correlation
1	5.0480	1.2088	-1.233	1.232	0.899	0.744
2	4.7447	1.3707	-1.030	0.251	0.979	0.714
3	4.6449	1.2915	-1.048	0.792	0.936	0.725
4	5.1190	1.4862	-0.897	0.297	0.839	0.565
5	4.8580	1.3049	-1.049	0.932	0.898	0.688
6	4.7006	1.2258	-0.948	1.030	0.867	0.708
7	4.7582	1.2228	-0.968	0.862	0.924	0.756
8	4.7466	1.1788	-0.587	0.217	0.853	0.723
9	4.8330	1.2546	-1.043	0.927	0.970	0.773
10	4.7678	1.1856	-0.683	0.950	0.852	0.719
11	4.9347	1.2541	-0.628	0.707	0.727	0.580
12	4.3282	1.1920	-0.389	0.038	0.840	0.705
13	4.2418	1.2462	-0.233	0.021	0.820	0.658
14	5.0211	1.2836	-1.064	0.942	0.970	0.756
15	4.7889	1.2625	-1.123	1.110	1.003	0.794
16	4.7255	1.1798	-0.936	0.854	0.969	0.821
17	4.7274	1.4957	-0.905	0.128	1.227	0.821
18	4.5385	1.2533	-0.562	0.342	0.956	0.754
19	5.1288	1.4374	-1.009	0.663	1.206	0.830
20	4.6814	1.2673	-0.779	0.431	0.989	0.781
21	4.9328	1.2031	-0.981	0.687	1.008	0.838
22	4.8752	1.4324	-0.820	0.184	1.230	0.859
23	5.2457	1.3549	-1.058	0.965	1.159	0.856
24	5.0480	1.4059	-0.986	0.707	1.203	0.856
25	4.8119	1.2797	-0.833	0.549	1.064	0.831
26	4.6200	1.2425	-0.699	0.493	1.055	0.849
27	5.0384	1.3525	-1.208	1.206	1.158	0.856
28	4.8733	1.3299	-0.958	0.764	1.110	0.835
29	4.6065	1.2529	-0.814	0.769	1.003	0.801
30	4.7025	1.2207	-0.670	0.369	0.951	0.779
31	5.0441	1.3615	-1.195	1.041	1.095	0.804
32	4.7889	1.2970	-0.866	0.450	1.107	0.854
33	4.7712	1.2675	-0.641	0.475	1.066	0.831
34	4.7294	1.2332	-0.610	0.297	0.956	0.775
35	4.4635	1.3031	-0.586	0.086	1.049	0.797
36	5.3129	1.3345	-1.210	1.555	0.993	0.744
37	5.0058	1.2641	-1.072	1.173	1.053	0.833
38	4.8292	1.2230	-0.855	0.756	1.047	0.856
39	4.4261	1.2053	-0.560	0.622	0.922	0.756

40	5.3685	1.5085	-1.189	1.045	1.283	0.851
41	5.1536	1.4908	-0.943	0.482	1.292	0.867
42	4.8215	1.3086	-0.866	0.642	1.007	0.770
43	4.8177	1.2276	-0.694	0.480	0.995	0.811
44	4.6891	1.5390	-0.880	-0.135	1.120	0.727
45	4.8714	1.4320	-0.865	0.232	1.210	0.845
46	4.4818	1.3244	-0.821	0.363	0.984	0.743
47	4.5605	1.2219	-0.833	0.566	0.962	0.787
48	4.4952	1.1588	-0.688	0.584	0.863	0.771
49	4.9885	1.4451	-0.893	0.361	1.235	0.855
50	5.0729	1.3382	-0.902	0.415	1.163	0.869
51	5.0326	1.4964	-0.813	0.208	1.283	0.857
52	5.0749	1.3258	-0.983	0.937	1.123	0.847
53	4.8772	1.4519	-1.015	0.517	0.976	0.672
54	4.9731	1.2070	-0.982	1.358	0.977	0.810
55	4.9846	1.2464	-1.042	1.034	1.067	0.856
56	4.8964	1.3689	-1.099	0.938	1.159	0.847
57	4.9539	1.2610	-1.005	0.759	1.096	0.869
58	4.9559	1.3488	-1.010	0.651	1.094	0.811
59	5.0058	1.5311	-1.036	0.565	1.291	0.843
60	5.1670	1.5863	-0.755	-0.208	1.254	0.791
61	4.9309	1.3413	-0.795	0.149	1.175	0.876
62	5.3033	1.5368	-0.866	0.118	1.236	0.804
63	4.8292	1.2571	-0.707	0.621	1.047	0.833
64	4.7812	1.4190	-0.837	0.430	1.040	0.733
65	4.9098	1.2563	-0.910	0.827	1.097	0.874
66	5.0365	1.2937	-1.159	1.098	0.942	0.728
67	5.0096	1.4026	-1.008	0.558	1.094	0.780
68	5.1919	1.8075	-0.806	-0.411	1.288	0.713
69	5.0595	1.4245	-0.963	0.355	1.253	0.879
70	5.2054	1.3763	-1.160	1.259	1.141	0.829
71	4.9386	1.3658	-1.084	0.839	1.163	0.852
72	4.5988	1.3396	-0.757	0.082	1.110	0.829
73	4.5585	1.1885	-0.826	0.747	0.849	0.715
74	4.5931	1.1467	-0.710	0.536	0.860	0.750
75	5.2745	1.3241	-1.058	0.962	1.076	0.813
76	4.8464	1.3472	-0.638	-0.089	1.093	0.811
77	4.9271	1.3482	-0.926	0.486	1.135	0.842
78	4.8349	1.3242	-0.732	0.204	1.118	0.845
79	4.9770	1.2401	-1.225	1.189	1.085	0.875
80	4.8119	1.2524	-0.743	0.689	1.055	0.842
81	5.0921	1.3182	-1.040	0.955	1.086	0.824
82	4.7447	1.2987	-0.829	0.635	1.036	0.798
83	4.7140	1.3829	-0.550	0.166	1.160	0.839
84	4.8944	1.4259	-0.944	0.653	0.943	0.661
85	5.0998	1.2746	-0.786	0.588	0.970	0.761
86	4.7294	1.1307	-0.607	0.395	0.809	0.715
87	5.0576	1.4048	-0.863	0.613	1.037	0.738
88	4.9271	1.2178	-1.098	1.127	0.996	0.818
89	4.7927	1.3711	-0.593	0.229	1.086	0.792
90	4.8407	1.2992	-1.128	1.087	1.069	0.823
91	4.5566	1.2805	-0.601	0.235	1.033	0.806
92	4.9079	1.2600	-0.926	0.263	0.903	0.717
93	4.9021	1.1800	-1.142	1.228	0.962	0.815
94	5.3167	1.5107	-1.092	0.789	1.271	0.841
95	4.8964	1.2818	-0.894	0.419	1.070	0.835
96	5.0307	1.4247	-0.831	0.361	1.188	0.834
97	4.9770	1.2662	-0.892	0.525	1.101	0.869
98	4.9117	1.1961	-1.109	1.197	1.000	0.836
99	4.7236	1.2681	-0.708	0.394	0.925	0.729
100	4.6641	1.2170	-0.852	0.856	0.993	0.816
101	5.0480	1.3755	-1.128	0.969	1.168	0.849
102	5.2821	1.3094	-1.018	0.948	1.086	0.830
103	5.4338	1.5566	-1.227	1.082	1.307	0.840
104	4.9271	1.4526	-0.995	0.670	1.174	0.808
105	4.8772	1.3574	-1.050	0.865	1.063	0.783
106	4.8119	1.4475	-0.773	-0.008	1.111	0.768
107	4.2418	1.3697	-0.452	-0.300	1.040	0.760
108	4.4088	1.2263	-0.649	0.403	0.983	0.801
109	4.4568	1.3004	-0.308	-0.805	0.964	0.742

the use of the Communicating-for-Change questionnaire. The practical value of this instrument is believed to be its ability to identify the aspects impacting on communication effectiveness within an organisational change context, thereby enabling management to develop a communication strategy that will overcome these barriers, resulting in effective change communication. This will enhance the probability that the change strategy will succeed, because one of the critical factors that promote change success, namely communication, was effective and efficient. The output of the questionnaire could indicate the following:

- Communication focus areas, resulting in pro-active communication strategies, plans and activities.
- Communication content and mode dimensions, with reference to specific levels or units within the organisation.
- Deficiencies in the current change communication strategy.

The study succeeded in integrating various theories regarding change management and communication into a matrix that resulted in the development of an instrument that reliably and validly measures factors that impact on effective communication in a change context. The above should result in focused, need-specific communication plans that could enable the change drive and minimise the potential negative impact of change on individuals.

The following possible limitations to this study exist:

- The instrument was applied to a sample of convenience, as participation in the survey was voluntary.
- The sample was not optimally representative in terms of gender and race.
- The findings of the study should not be generalised to other organisations without considering the specific contextual factors.

Although the responses received were comprehensive and valuable for the purpose of this study, it is suggested that the questionnaire be administered to an even larger and more representative sample, covering organisations and industries in greater depth. It may also be beneficial to compare the results of the questionnaire between organisational levels; between industries and organisations; between genders; between language preferences; between different change management styles, i.e.: power-coercive, normative-educative and rational-empirical. These comparisons could also shed light on the discriminant validity of the scale.

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