A conceptual model to measure the level of skills for managerial competence of business school-educated managers in South Africa

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ABSTRACT

This study investigates management competencies of business school-educated managers and leaders. Building on previous research, this study attempts to reflect on the ever-shifting sands of the competency requirements and the roles of managers and leaders in the context of business in the 21st century. More specifically, this study aims to pinpoint the current level of managerial skills and competencies that are fundamental to enable high performance among business managers. This is specifically relevant given the large-scale impact of the Fourth Industrial Revolution and its influence on innovation and disruption within the broader impact of automation of jobs, skills, wages, and the nature of work itself. This requires rapidly changing roles and competencies for managerial effectiveness. Although there are many ways to explore the linkage between management education and managerial competencies, this study departed by comparing existing theoretical models to measure competencies of managers and leaders educated within the business school environment and develops a new theoretical model to do so. The new model comprises eleven management competencies; they are *leading change, cultural intelligence, team building, conflict management, communication skills, a global leader mindset, emotional intelligence, career awareness, personal value system, and external and ethical influences*. These competencies are measured by 42 criteria. The new model is empirically evaluated by using data obtained from 385 respondents who completed a five-point Likert scale. The questionnaires were independently administered to business school educated managers, and 94% responded. The competencies and their respective measuring criteria were statistically validated, subjected to exploratory factor analysis to identify the inherent latent variables and then finally measured as per the newly developed model. Five factors were identified. They are *Leadership skills, Managerial challenges, Emotional intelligence, Personal value system, and Cultural sensitivity* and cumulatively explain a variance of 56.5%. The data have a high reliability coefficient of 0.947 as measured by Cronbach's coefficient Alpha. Given the dearth of South African studies, this study contributes not only to the paucity of research work undertaken in this area but also makes a finite contribution to the body of knowledge of managerial competencies as a managerial distinctive, with particular reference to modelling a framework that could measure managerial competence. This research is also of value to managers who aim to improve their managerial and leadership skills after studying advanced management programmes at business schools.

Also, this research study is of value to employees of such managers and also to academia aiming to explore this avenue of managerial and leadership skills development further. In so doing this study contributes to a larger management discourse within the South African context.

Key terms: management, manager, leaders, leadership, competencies, skills, model, business school, business education, MBA

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CHAPTER 1

NATURE AND SCOPE OF THE STUDY

1.1　INTRODUCTION

This study investigates *management competencies* of business school-educated managers and leaders. Building on previous research, this study attempts to reflect on the ever-shifting sands of the competency requirements and the roles of managers and leaders in the context of business in the 21st century.

1.1.1　Historical overview

This study investigates *management competencies* of business school-educated managers and leaders. Building on previous research, this study attempts to reflect on the ever-shifting sands of competency requirements and the roles of managers and leaders in the context of business in the 21st century.

Management competency was identified in research by David McClelland (1973). He argued that the use of aptitude tests (which were popular in the seventies as performance predictors), do not serve the purpose they were intended for and are also prone to cultural biases. Other traditional measures in use such as references, psychometric tests or examination results and are equally poor in predicting job success. Here McClelland raised the issue of individual competence as a promising alternative to predict job performance. Consequently, McClelland seminally defined competencies as:

> *Representing groups of behaviors underlying individual characteristics that enable superior job performance."*

McClelland (1973).

Following McClelland, and also joining him in collaborative research on competencies, Boyatzis (1982) developed his own definition of management competence where he states that management competence actually consists of task and skill competencies. He defines managerial competence as:

"Managerial competence consists of two components, which are different from each other. One of them is a task that is necessary to fulfill and the second is the skills that workers must have to fulfill the role at the required level. In other words, we distinguish between what we do and what behavior is needed to fulfill the task in an excellent way."

Boyatzis (1982)

Since the identification of managerial competence by McClelland in 1973, research in using competencies to identify and predict managerial and leadership effectiveness and long-term success continued. Managerial performance was linked to competencies using cognitive ability and personality, management and leadership competency models and competency-based selection tools such as the behavioural event interviews (McClelland, 1994) and to coach managers to overcome specific problems (Heinsman et al., 2007). New views of managerial competence also surfaced in the first decade of new century where new definitions were formulated by researchers:

"Managerial competencies are sets of behaviors that enable individuals to demonstrate the effective performance of tasks within the organisation."

Whiddett and Hollyford (2003)

"Actual competencies are specific skills and behaviours important to the role."

McCarthy and Fitzpatrick (2009:346).

Later, in 2012 Krajcovicova, Caganova and Cambal (2012:1119) revisited the view Boyatzis (1982) had that competence consists of tasks and skills. They reasoned that a managerial competency is more complex and that it also requires an ability to meet complex job demands. Managers are required to mobilise psychosocial resources such as skills and attitudes and apply it to the particular context. One modern view of managerial competence is offered by Czaja (2017) who incorporates the concept of teamwork. This is also a managerial competence specifically relevant in the Fourth Industrial Revolution where teams are culturally diverse and geographically dispersed (Hattiing, 2016). Here Czaja states that:

"Managerial competencies are the skills, motives and attitudes necessary to a job, and include such characteristics as communication skills, problem-solving, customer focus and the ability to work within a team."

<div align="right">Czaja (2017)</div>

This historical overview provides a glimpse into the complexity of the concept of managerial competence. This study's objective is, therefore, to analyse and outline the key competencies required for a manager to be effective in different organisational settings. In so doing, the following broad research questions are posed, to ground the study:

1. What are the demands on managers in the current dynamic and volatile business environment?
2. What are the key managerial skills and competencies that are required for managers to become effective in the workplace?
3. How can these skills and competencies be measured?
4. How could managerial competency measurement inform management development and career planning?

In an era of rapid change, profound diversity and complexity in the workplace, the need for developing managerial talent is increasingly evident (e.g., Day, Harrison, and Halpin, 2009). Today, managers must successfully adapt to changing demands and situations, manage multiple lateral relationships, set and implement agendas, and cope with stress and uncertainty (Dragoni, Tesluk, Russell and Oh, 2009). Foremost among the many drivers of modern business organisations are the twin imperatives of effectively utilising advanced information and communications technology (ICT) as well as competent human capital. The pressure to succeed in a hyper-competitive world; the challenges of dealing with globalisation and the race for scarce resources (human, financial, informational and raw materials); environmental considerations and unprecedented regulatory considerations have cumulatively forced business organisations to manage the human capital elements judiciously. Alfred (2012) argues that the rapidity, scale and complexity of change in the workplace require that the very foundational principles of leadership and management have to be questioned and possibly, rethought.

Organisations spend significant time and resources in recruiting, training and retaining a qualified workforce. The key challenge of measuring and ensuring a *competent* cadre of managers and leaders remains elusive for many. Slocum et al. (2007:4), state that although knowledge, behaviours and attitudes are essential components of management competencies, persons need to effectively transfer them into *managerial skills* for managers to become competent. While employee costs continue to assume a larger proportion of business expenditure, the return on this investment is often left to chance, as it were.

1.1.2 Modern business environment

The profile of the 21st century workplace is undergoing large-scale and fundamental changes. Managers, therefore, have to operate in a complex environment and are required to respond rapidly to demands that are, at most times, unpredictable (Bagraim et al., 2016:18). In recent years though, there has been a rising surge of contemporary criticisms of management education as well as approaches to management and leadership development (Varela, Burke & Michel, 2013). A number of these post-2000 studies assert inadequacies in the development of managerial skills and competencies (Mintzberg, 2004; Pfeffer & Fong, 2004).

Walker, Walker and Schmitz (in Katulwa, 2016:65) describe the modern global business environment as a series of complex, interdependent developments which include unyielding competitive pressures, rapid market shifts, major acquisitions or mergers, the lowering of trade barriers, decreasing transport costs, heightened expectations on the part of customers and employees, advances in communication and information technology, global access to capital markets and inflation-driven staff reductions. Here Manyika (2017) adds that the Fourth Industrial Revolution has disrupted almost every industry in every country, and continues to argue that technologies also raise difficult questions about the broader impact of automation of jobs, skills, wages, and the nature of work itself. The opportunities and challenges that originate from the technologies enabled development of automation, such as robotics, artificial intelligence and artificial engineering, bring the promise of higher productivity, increased efficiencies, safety and convenience. Eulitz (2016:13) a leading proponent of the Fourth Industrial Revolution and its digital change phenomenon adds that digitisation has to be anchored deeply in the organisation as an

essential success factor for business growth. In this regard, companies are hiring specialised digital personnel who lead interdisciplinary teams with special skills in the field of digitisation, for example, e-commerce, and function as a start-up within an existing company (Eulitz, 2016:13). A recent study by the Sloan Business School at the Massachusetts Institute of Technology concluded that leadership capabilities need to succeed in this new digital world. This involves conceptualising in a virtual world, handling ever-increasing cognitive complexity, thinking divergently about new ways of doing things and making decisions quickly without all the information that is readily available. Here the increased advances in communication and technological convergence aid management decision-making (Dunwood & Peters, 2016).

The Fourth Industrial Revolution also encourages cultural diversity which continues to exert pressure upon organisational leaders to enhance their capacity to connect in nontechnical ways (Dunwood & Peters, 2016). In this case Maitland and Anderson-Terry (2017) confirm the importance of teams in business to cope with the disruptive changes the Fourth Industrial Revolution brings about. This is specifically relevant to South African managers and leaders because 32% of them have insufficient understanding of these disruptive changes while a study indicated that due to the disruptions of the Fourth Industrial Revolution, 44% of organisations' workforce strategies is also not aligned to the innovation strategies of these organisations (Hattingh, 2016). Hattingh also points out that virtual teams and their management are also a required competence in the postmodern business environment. Managers are also expected to lead using global and even virtual teams in the workplace (Maitland & Anderson-Terry, 2017), and have to adapt to cross-cultural differences and attempt to cope with important differences in interpersonal communication styles, preferred approaches to organisational control and authority relations, and work-related knowledge and problem-solving approaches (Cramton & Hinds, 2014; Fong et al., 2016, Cornellissen, 2017).

For policymakers, business leaders, managers and workers at large, these shifts create considerable uncertainty alongside with the potential benefits. To add insult to injury, Abatiello et al. (2017) go on to argue that older business models are no longer working and that leaders need new competencies to redesign their organisations to be more dynamic,

team-centric, and connected. Within this context, the demand for competent management or leadership is now, more than ever, an important area of focus for the survival and growth of any organisation.

In the midst of these complex dynamics, vexing management and leadership questions remain; for example, what are the implications of these technological changes for managers or leaders of companies? What are the characteristics of the manager who has to navigate the organisation through the era of mass disruptions? Are the current managerial or leadership styles still appropriate? Traditional management thinking such as the linear organisation structure and current leadership styles could even become obsolete. In this regard, Hoffmann (2016:12) warns that conventional organisational structures with multiple hierarchical levels will disappear in the context of the Fourth Industrial Revolution. In line with this view, Bauer (2016) confirms that the modern organisation has to develop and learn continuously and that the shifting organisational boundaries will lead to adjusted organisational structures; swift action and decision-making is required to remain competitive.

These business environmental realities pose more challenges to managers and leaders, and it is clear that special attention needs to be given to the skills and competencies of managers and leaders to equip them to embrace the disruptive changes of the Fourth Industrial Revolution (Staffen & Schoenwald, 2016).

This historical overview and high-level analysis of the modern environmental challenges provide a glimpse into the complexity of the concept of managerial competence. This study aims to analyse and outline the key competencies required for a manager to be effective in these different organisational settings brought about by the Fourth Industrial Revolution and the new digital economy. In so doing, the following broad research questions are posed, to ground the study:

Typical demands on managers in the current dynamic and volatile business environment are:

- What are the key managerial skills and competencies that are required for managers and leaders to become effective in the workplace?

- How can these skills and competencies be measured?
- How could managerial competency measurement inform management development and career planning?

1.2   PROBLEM STATEMENT

The changing context for leadership is perhaps best framed within the dramatic aftermath of the global financial crises in 2008. Volatile financial markets, lingering high unemployment, widening debt crises in economies globally, and eroding consumer confidence combined to create what is widely being termed as the 'new normal' (Alfred, 2012; Hatting, 2016).

The well-known maxim 'in every cloud there is a silver lining' helps to explain the ongoing chaos in the global economic downturn. Opportunistic investors have used economic downturns as buying opportunities. Similarly, businesses have used the urgency that accompanies slumps to encourage innovation and organisational renewal. Universities and Business Schools, in particular, have experienced dramatic enrolment gains in periods of economic recession. Leaders in an era of rising demand and reduced resources need to become more adept at doing more with less. They will need to generate new sources of revenue to support growth, increase the capacity and productivity of staff, win the war for talent with fast-moving rivals and build cultures that embrace innovation and change. They will be challenged to develop new organisational designs to get in front of change, and they will need to think differently about organisational success.

For organisations and managers, however, this will require innovation – therefore compelling leaders and managers to develop new skills and competencies to respond to adversity with creative solutions (Alfred, 2012; Anderson, 2017; Maitland & Anderson-Terry, 2017). Herein lies the pivotal problem of human capital management for most organisations: to be able to scientifically measure and further develop the skills and competencies required for managerial capability, competency and effectiveness within complex and demanding work settings. In other words, the challenge for organisations is to have the tools to measure, with a high degree of certainty, the skills resident in an existing or prospective manager, as well as to be able to target the future management development needs of managers more sensitively.

Despite the rapidly changing roles and competencies required for managerial effectiveness, there is no well-developed and empirically supported model to actually measure competencies for superior management performance in the contemporary business environment in South Africa, in particular, and Southern Africa at large.

In South Africa, Thekiso (2011) and Shaikh (2013) have done some work in this area, but this needs to be refined and focused on a model that can meaningfully measure competencies. Hence, the primary objective of this study is to build a conceptual model that measures skills for managerial and leadership competence.

1.3   AIMS OF THE RESEARCH

This study aims to pinpoint the current level of managerial skills and competencies that are fundamental to enable high performance among business managers (McClemand, 1973; Boyatzis, 1982; Spencer & Spenser, 1993; Antonacopoulou & FitzGerald, 1996; McCarthy, & Fitzpatrick, 2009; Krajcovicova et al., 2012; Czaja, 2017). In South Africa, a pilot study (Shaikh, 2012), the conceptual framework of Thekiso (2011) was employed to measure identified skills for the managerial competence of managers studying towards the Master of Business Administration (MBA) degree programme at the Management College of Southern Africa (MANCOSA). This primary theoretical background, concepts and conceptual framework to measure seven skills identified for managerial competence were developed as part of a doctoral study on a similar subject by Thekiso (2011) at another South African Business School.

Given the dearth of South African studies in this respect, the work of Thekiso (2011) together with those cited in the literature were utilised to give substance and analysis in respect of the work and research being undertaken in this project and research study. It is envisaged that this research contributes not only to the paucity of work undertaken in this direction but makes a finite contribution to the body knowledge of managerial competencies as a managerial distinctive, with particular reference to modelling a framework that could measure managerial competence. In so doing the work contributed to a larger management discourse within the context of South Africa.

The main aims of the study, therefore, are to develop a conceptual model to evaluate the identified skills for managerial competence, use this model to identify management development and training needs of managers and to operationalize the model so to present a practical model that can measure the skills for managerial competence in South Africa.

As a *secondary* consideration, the results of this study may also provide some feedback and insights for the Council on Higher Education's (CHE) project of reviewing the curriculum and design of the MBA degree programme. The MBA degree in South Africa is currently at NQF-level 8. The new MBA degree to be offered from the year 2016 onwards will be pitched at NQF-level 9. Furlonger (2014) stated that: "The realignment of the new MBA to master's level (NQF-level 9) is the qualification's biggest overhaul since 2004 when a full CHE reaccreditation process laid down strict criteria defining the intent and content of an MBA". There has been much concern, and consternation, in recent years that the curricula of MBA degrees are misaligned, and lacking 'real-world' relevance, about managerial competency (Rubin & Dierdorff, 2009). Bennis and O'Toole (2005) go further to strongly state that "business schools have lost their way" by refusing to view management as a profession rather than a science. The results of this study could therefore also be potentially valuable to the public and private Business Schools offering the MBA degree and other management education programmes in South Africa and beyond.

1.4   RESEARCH OBJECTIVES

The primary objective of this study is *to develop a conceptual model to measure the level of skills for managerial competence of managers*.

The primary objective of this study is achieved by pursuing the following secondary objectives:

1. Evaluate existing models and their applicability to measure skills for managerial and leadership competence;
2. Develop a theoretical model to measure the managerial competence of business school educated managers;
3. Empirically evaluate the theoretical model to measure the managerial competence of business school educated managers and leaders; and to

4. Measure the management and leadership competencies of business school educated managers in South Africa.

1.5   SIGNIFICANCE OF THE RESEARCH

The value of this research lies in the empirical evaluation of a new conceptual model to measure managerial skills for management competence. Managerial models that can be identified from the literature study appear orthodox in nature, and they do not seem to progress further to explore skills for managerial competence.

More specifically, this study:

- Evaluates current models to measure skills for management competence in the literature research;
- Improves and develops a new theoretical model to measure skills for management competence;
- Empirically tests the relationship between the identified managerial skills;
- Determines the relative importance of each skill in managerial competence; and
- Provides a new model that can successfully be operationalised by managers and leaders in South Africa to assess the managerial competencies of their organisation.

Further, the significance of the research is to attempt to contribute to the discipline of organisational leadership and management, concerning varying theoretical approaches and practices in the context of management development training in a dynamic and changing organisational environment.

1.6   RESEARCH METHODOLOGY

1.6.1 Steps in research

Research, by its very nature, suggests that there is some scientific order in it and that it follows a chronological order. The following chronological steps of research were identified for this study:

Step 1: Planning. This stage of the research process was addressed earlier in this proposal when the research problem was identified and the research objectives determined.

Step 2: Literature study. This stage of the research process would involve conducting secondary research through a detailed literature review to provide background information for defining the problem as well as reviewing other managerial models that purport to identify and measure skills for managerial competence. The literature study draws and assimilates information from journal articles, research reports, textbooks and Internet searches covering relevant issues in competency-based theory and managerial competency models, and its relevance to management development.

Step 3: Research design. This stage of the research process involves the development of a sampling plan. While the researcher aspired to collect responses and draw conclusions from all MBA students as regards the conceptual model to measure skills for managerial competence, time and cost constraints were prohibitive. The population of MBA students of selected business schools was targeted for purposes of this study. (See Step 4 for data collection)

Step 4: Data collection. In this stage, the research involves the actual investigation and primary research for this study in such a way as to attain answers to the research objectives. During this stage of the research process, managers studying towards an MBA degree were surveyed and their responses were collected using a structured questionnaire. The questionnaire used was a validated instrument used by Thekiso (2011) in the development of the conceptual model to measure the seven identified skills for managerial competence. Data were gathered using a structured questionnaire that was distributed to the sample using software programmes such as 'Survey Monkey' and/or 'Google Forms' that were utilised to secure the required data, while a personal collection of data at study group meetings were also employed to distribute and collect the data. The data were collected by trained management educators and the researcher at two delivery sites of the MANCOSA Distance Learning MBA programme (Durban and Johannesburg). Since many of the MANCOSA MBA students are employed in managerial positions in a variety of local, national and international organisations, it was felt that these students and

their respective organisations would represent a suitable sample for this study. It is important to note that students from all the study centres across South Africa and as well as Southern Africa attend these study schools, hence the population was not limited to the cities of Durban and Johannesburg. Before distributing hard copies of the questionnaire to the prospective respondents, the purpose of the study was explained after which they were asked to participate. Participation in this study was not mandatory for the prospective respondents. Students not attending the study schools were targeted via the software programmes mentioned above to gather their responses.

A 5-point Likert-type scale (ranked from strongly agree to strongly disagree) was used to measure the seven skills.

Step 5: Data analysis. This stage of the research process involved the data processing. This comprises data preparation and data analysis. While data preparation involves coding, editing, capturing and cleaning of the data; statistical analysis was used to extract the needed information to solve the research problem. The statistical software Statistical Programme for Social Sciences (V24) (IBM-SPSS) was used to conduct the data analysis. The advice of the Statistical Consultation Services of the North-West University was employed to assist in the analysis of the data.

The primary data analysis method was quantitative. It is projected that constructive validity of the questionnaire was assessed by means of the descriptive statistics, exploratory factor analysis and a number of other statistical tests such as Bartlett's test of sphericity, sample adequacy as measured by Kaiser-Meyer-Olkin measure of sampling adequacy, reliability as measured by Cronbach's coefficient Alpha and also correlations as per the Pearson correlation coefficient (see Figure 1.1 and Table 1.2 below).

Step 6: Discussion of results. This stage of the research process involved a discussion on the research findings, synthesis, conclusions and recommendations.

In addition to the steps set out above, the research consists of a literature and an empirical study.

1.6.2 Literature study

The literature study focuses on managerial competence, also including leadership competence where applicable. First the current models of business school educated managers are evaluated. Secondly the relevant competencies are retained from the existing models while additional new competencies are identified. Thirdly, the relevant measuring criteria for each competency are identified and formulated, after which the study finally, evaluates the empirical findings of the literature to determine if the findings conform to existing knowledge or if new knowledge has been contributed to the existing body of knowledge. The study has a solid literature basis.

The literature study consisted of scientific journal articles, textbooks, and other scientific readings located with the assistance of the university libraries of the North-West University and Regent Business School. A research specialist in the library of the North-West University was dedicated by the institution assisted in locating the appropriate sources from the following electronic sources:

- EBSCO;
- EMERALD;
- SABINET;
- Google Scholar;
- University Internet journal memberships;
- Other University databases; and the
- University library catalogues.

1.6.3   Empirical study

1.6.3.1   Research Instrument

A structured questionnaire to measure managerial competence was specifically developed from the theoretical study. Here the existing models that measure managerial competence were identified, scrutinised and evaluated. Competencies deemed appropriate were retained and after that new competencies were identified from further literature research. Measuring criteria relevant to the competencies were also identified from the literature. The literature study identified the 11 management and leadership competencies while in-depth theoretical research guided the way towards formulating the 42 specific measuring criteria

that were included in the questionnaire. The skills, item code, criteria and origins on which the questionnaire was based, appear in Table 2. The self-generated criteria that appear in the table are based on either multiple authors' (sometimes vague) views on a specific concept or have been formulated based on a similar (but not directly attributable) line of thought some author(s) had.

The questionnaire consists of two sections: Section A: Demographics and Section B: Measuring criteria. Section A consists of eight questions to compile the demographic profile of the respondents. Section B consists of the 11 management and leadership skills, each with its measuring criteria, in statement format to which the respondents had to indicate their level of agreement or disagreement on a five-point Likert scale. In total, Section B consisted of the identified 42 measuring criteria.

1.6.3.2   Data collection

All executive MBA students of two selected private business schools served as the population. These schools are geographically servicing all areas of South Africa. The students attend study schools in Durban and Johannesburg. The study school held in June 2017 was used to collect the data in the classrooms. The students attending the classes were requested to complete the questionnaires. Participation was voluntary and anonymous. Trained research assistants, mostly lecturers of the business schools, distributed, assisted and collected the questionnaires. The lecturers were specifically used to collect the data because they have, in addition to being well briefed about the research project, a good knowledge and understanding of academic research. A total of 385 questionnaires were distributed of which 362 completed and usable questionnaires were collected. Two questionnaires were unaccounted for while 21 were incomplete. These questionnaires were discarded because they could not be used. This resulted in an effective 94.0% response rate. The data were captured by the Statistical Consultation Services of the North-West University and analysed with the IBM Social Package for Social Sciences Version 24 (SPSS, 2017).

1.6.4   Statistical analysis

The software *Statistical Package for Social Sciences* software (Version 24) was used to analyse the data. In accordance with doctoral study requirements, both descriptive and

multivariate statistical techniques were used (Naidoo, 2011; Fields & Bisschoff, 2013a; Imandin, 2015), The statistical techniques (as mentioned above) and their decision criteria, as it was applied in this study, appear in Table 1.1 (see also Figure 1.1 where the chronological order of the techniques is displayed).

Table 1.1:   Statistical techniques employed and decision criteria

Statistical technique	Decision criteria	Substantiating source
Descriptive statistics	***	Field (2009)
Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy	KMO ≥ 0.9 (Excellent) KMO ≥ 0.8 (Very good) KMO ≥ 0.7 (Good) KMO ≥ 0.6 (Acceptable) KMO ≤ 0.6 (Unsatisfactory)	Field (2009) Fields & Bisschoff (2013b) Imandin (2015) Golafshani (2003)
Bartlett's test of sphericity	$p < 0.05$	Field (2009) UCLA (2017a)
Cronbach Alpha reliability coefficients	$\alpha \geq 0.70$ (Reliable) $0.57 \leq \alpha \leq 0.70$ (Acceptable) $\alpha \leq 0.57$ (Not reliable)	Salkind (2000) Cortina (1993) Field (2009)
Exploratory factor analysis (Orthogonal Varimax rotation)	Factor loading ≥ 0.40 Variance ≥ 50% (Acceptable) Variance ≥ 60% (Desirable) Eigenvalue ≥ 1	Costello & Osborne (2005) Field (2009) Arbuckle (2012) UCLA (2017a; 2017b)
Pearson correlation coefficient	-0.30≥ p ≥ 0.30 p ≥ 0.05; 0.10	Tang et al. (2003) Du Plessis (2010). Zikmund (2008)

The statistical analysis decision tree (developed by Naidoo, 2011) was used as a guide. The decision tree appears in Figure 1.1.

Figure 1.1:   Data analyses decision-tree

Data collected from the sample

Verify population and sample

Test 1: KMO measure of sample adequacy (KMO≥0.7)

NO

YES

Test 2: Bartlett's test of sphericity (p<0.05)

NO

YES

Exploratory factor analysis (Factor loading ≥ 0.40)

Report high correlation coefficients

Report unsatisfactory levels of reliability

Pearson correlation coefficients (-0.30≥ p ≥ 0.30)

Test 3: Cronbach Alpha's reliability and internal consistency coefficients (α ≥ 0.70)

Identified factors and the factors' variance (Variance ≥ 50%; preferred 60%; Eigenvalue ≥ 1)

Source: Adapted from Naidoo (2011:19) using Field (2009) and Arbuckle (2012)

1.6.5 Ethical considerations

The study was evaluated against the ethical standards and practices of the North-West University's Ethical Committee. The committee classified the study as a low-risk study and approved it; a study-specific ethics number is not issued in the case of a low-risk study.

1.7   LAYOUT OF THE STUDY

The study consisted of six chapters and structured in the North-West University's approved article format. The study consists of an introductory chapter, four consecutive articles and a final chapter where conclusions and recommendations are made. It is important to note that the articles in this study build on one another. This means that the results obtained in, for example, article 1, are then use as the point of departure in article two. This has two noteworthy influences on the layout of the study, namely:

- In some cases, a figure or results derived at the end of the article is repeated as point of departure in the next article. This is required because the articles are stand-alone articles. An example here is the theoretical model developed in article 2, which is then empirically evaluated in article 3; hence the figure appears again in article 3 as departure point.
- The four articles in the study develop the final model to measure managerial competencies step-wise. This mean that the final model which results cumulatively from all four articles, is presented in the final chapter (see figure 6.1).

The objectives of the articles guide the contents of each article. More specifically, the content and layout of the study consist of:

Chapter 1: Introduction

The chapter provides an introduction to the field of study, the problem statement and the objectives of the study. In addition to the problem statement, research questions and objectives, and research methodology, and the structure of the study are explained.

Chapter 2: Article 1: A conceptual model to measure skills required for managerial competence

Chapter 2 presents the first scientific article. This article sets the scene for a further exploration of the topic on managerial and leadership competence and deals with the literature study and the theoretical evaluation of existing models on managerial competence. The primary objective of this article is to develop a theoretical model to measure skills for managerial and leadership competence.

Chapter 3: Article 2

Chapter 3 presents the second literature article. It further explores the topic on managerial competence and deals with the literature review and the theoretical evaluation of existing models on managerial competence. The article retains selected competencies from the first article and further identifies other relevant managerial competencies from the literature. It then continues to identify relevant measuring criteria for each of the managerial competencies. The objective of this article is to develop a theoretical model to measure skills for managerial and leadership competence.

Chapter 4: Article 3

This chapter presents the third article, namely to empirically validate the conceptual model as a scientific measuring tool to measure skills required for managerial competence and determine if any of the measuring criteria are not relevant to the managerial competence they measure. What the article proceeds to investigate is whether any latent variables of managerial competence are present (five latent variables – factors – were identified). The article then discusses the latent variables and their influence in managerial competence.

Chapter 5: Article 4

The final article (presented in Chapter 5), empirically measures the skills for managerial competence using inferential statistics. The article provides a snapshot in time of the managerial competence of business school educated managers in South Africa.

Chapter 6: Summary, Conclusions and Recommendations

The final chapter offers the final model to measure managerial and leadership competence as compiled step-wise by the preceding articles. It then draws conclusions, offers recommendations, identifies areas of further research. Finally, it provides a summary of the study.

1.8   CONTRIBUTION OF THE STUDY

This study attempts to make the following contributions:

Although managerial models had been identified from the literature, these models did not progress further to explore skills for managerial competence. Given the orthodox nature of

models identified in the literature, this study purports to suggest a conceptual model that could be used to measure skills for management competence. This study further contributes to the discipline of organisational leadership and management, particularly about practices regarding leader and manager development within the context of a dynamic, changing organisational environment.

Given the dearth of South African studies in this respect, the work of Thekiso (2011) and Shaikh (2013), those cited in the literature study as well as the work that was undertaken in this research study could provide meaningful insights and substance to propose a conceptual model that could be used to measure skills for management competence. It is envisaged that this piece of research contributes not only to the paucity of work undertaken in this direction but makes a finite contribution to the body of knowledge of managerial competencies as a managerial distinctive, with particular reference to modelling a framework that could measure managerial competence. In so doing, the work contributes to a larger management discourse within the context of South African human capital and leadership development approaches and strategies.

1.9   LIMITATIONS OF THE RESEARCH

There is a paucity of research in respect of measuring managerial competencies in South Africa, and this makes comparisons difficult together with necessary extrapolations that could have enhanced the findings of the study.

The study is limited to MANCOSA, and it would have been of greater significance if the study could have been ectended to students from other similar institutions. The results and analysis would definitely enhance the findings of the study.

In a study of this nature, it is not possible to exhaust the literature, especially given that this study was conducted in South Africa. In this respect, there are a very limited number of similar studies in South Africa and this places some serious limitations for comparative purposes. To compensate for this limitation data from similar international studies were utilised to crystallise the subject matter.

1.10   SUMMARY

This chapter provides a broad outline of the aims, key questions, significance and research framework to test the skills and competencies deemed important for effective managerial performance in organisations. It is essential that managers have an understanding of the knowledge, skills, attributes and behaviours that can be measured and discerned for them to be deemed *competent* in the work environment. Once understood, these essential competencies can be the building blocks for ongoing training and development of managers. This research aims to refine further and validate the findings of the pilot study undertaken by the research in 2012 and to compare and contrast findings with previous such studies undertaken in the South African context in particular. This is a complex area of research and study, and it is hoped that a finite contribution to the body of knowledge would be made and, it is hoped that research in the future by other researchers would make added contributions in this direction.

This chapter introduced the study and provided a bird's eye view of the layout and expected content of the study. The topic of managerial competence is introduced, including a historical perspective, the objectives of the study and the relevant scientific techniques are discussed, and the layout, as well as the format, is presented. The statistical decision-making is presented as it was applied in the study, and the limitations of the study were also indicated.

The first stand-alone article is presented in the next chapter. This article evaluates the current South African research on competencies of business school educated managers. The article contributes by discarding failing managerial competencies while retaining the rest for further development and employment in the other articles of this study.

CHAPTER 2

ARTICLE 1:

A comparative model analysis of managerial and leadership competence of business school educated managers

A comparative model analysis of managerial competence of business school educated managers

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Abstract

This article compares an existing model to measure competence of managers educated within the business school environment to a similar model at another business school setting. The existing management model initially developed by Thekiso is evaluated to determine if the model can be operationalised, hence can be regarded as valid, to apply to another business school's educated managers' sample to measure their managerial competence. Resultantly, Thekiso's original model was applied to another similar sample at another business school educated manager population in KwaZulu-Natal. These respondents also studied towards a Master of Business Administration degree, but their specific cultural, language and business school variables differed. The objective was then to validate the model in different application settings. The results showed that the data were suitable to use to determine if the existing model can be used as it is to measure managerial competence. Also, the results indicated that Thekiso's existing model is not generic and cannot be operationalised as it is school-specific. The analysis showed that the measuring criteria developed by Thekiso are relevant, but the specific factors identified differ in nature and number, hence altering the core of the measuring model itself. As a result, the article formulates an alternative model for use in KwaZulu-Natal to measure skills for managerial competence in the province. This research is of value to management, academia and researchers because it renders an alternative model to measure managerial competence while also warning against operationalisation of any of the two models without further validation.

Key terms: management, skills, competence, MBA, model, factor.
JEL Code: M19

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[1] This article stems from the doctoral research by Ahmed Shaikh (student number: 270 323 88) at the NWU School of Business and Governance, North-West University, Potchefstroom, South Africa.

INTRODUCTION

This article investigates management competencies of business school educated managers and leaders. Building on research by Thekiso (2011) and Shaikh (2013), this study attempts to reflect on the ever-shifting sands of the competency requirements and the roles of managers and leaders in the context of business in the 21st century.

The focus of the study is to analyse and outline the key competencies required for a manager to be effective in different organisational settings. Also, this study aims to develop a theoretical model to measure managerial competencies. In so doing, the following broad research questions are posed, to ground the study:

1. What are the demands on managers in the current dynamic and volatile business environment?
2. What are the key managerial skills and competencies that are required for managers to become effective in the workplace?
3. How can these skills and competencies be measured?
4. How could managerial competency measurement inform management development and career planning?

Reid Hoffman, founder of Paypal and LinkedIn, aptly describes, in an interview with the Harvard Business Review, the chaotic, sometimes gruelling path to high-growth, high impact entrepreneurial organisations as he argues the imperatives for modern organisations to *blitzscale* as a growth strategy (Sullivan, 2016:45). *Blitzscaling*, according to Hoffman (2016:46), can be described as the art and science of rapidly building out a company to serve a large and usually global market with the objective of becoming the first mover at scale. Sullivan (2016:49) adds by putting forth some critical challenges facing managers in high impact Silicon Valley organisations. Fuzziness about roles and responsibilities, unhappiness about the lack of clearly defined portfolios from which to operate, managerially inefficient company structures and even team dysfunctionality are regarded as some of the key challenges facing managers in companies such as Google, Facebook, LinkedIn and PayPal (Hoffman, 2016:50). This scenario aptly captures the era of rapid change, profound diversity and complexity in the workplace, hence the need for appropriate managerial talent as argued earlier in the century by Day, Harrison and Halpin (2009:514). This is especially relevant since the modern era of rapid change, profound

diversity, complexity in the workplace, and the need for managerial talent are increasingly evident as competitive managerial challenges in the modern business environment (Hoffman, 2016:52).

Quality leadership is the hallmark of successful organisations. Some people have a natural talent for the role, but good leadership can be learned through training, coaching and practice. The quality of the leadership which is in place through the ranks of an organisation will in large part determine the success of that organisation in the long term. It is essential, therefore, that anyone who is entrusted with a position and responsibility for leading people fully understands and appreciates what this leadership role requires of them in practice (PWC, 2016a).

Six challenges modern leaders are facing, according to Gentry et al. (2015), are:

- **Developing Managerial Effectiveness**: The challenge of developing the relevant skills such as time management, prioritisation, strategic thinking, decision-making, and getting up to speed with the job; to be more effective at work.
- **Inspiring Others**: The challenge of inspiring or motivating others to ensure they are satisfied with their jobs; how to motivate a workforce to work smarter.
- **Developing Employees**: The challenge of developing others, including topics around mentoring and coaching.
- **Leading a Team:** The challenge of team-building, team development, and team management; how to instil pride in a team or support the team, how to lead a big team, and what to do when taking over a new team.
- **Guiding Change**: The challenge of managing, mobilising, understanding, and leading change. How to mitigate change consequences, overcome resistance to change, and deal with employees' reaction to change.
- **Managing Internal Stakeholders and Politics**: The challenge of managing relationships, politics, and image. Gaining managerial support and managing up; getting buy-in from other departments, groups, or individuals.

Gentry et al. (2015) continue and state that in the world that is changing at an unprecedented pace, the organisational transformation is crucial for survival. However, it comes more complex than ever to execute strategy successfully. This is all the more so since the leaders capable of such transformations are extremely in short supply. In this regard research by Harthill Consulting in 2015 reveals that less than 10% of leaders today have the right skills to lead successful transformational change. This may surprise many organisations, particularly those led by high-achieving operational managers with a track record to date of improving efficiency; however, they lack transformational skills. Harthill Consulting (2015) further points out that their research showed that the attributes required to manage a transformation or instil change are not the same managerial or leadership competencies as those exhibited by leaders who cope well with day-to-day operational, managerial issues, or even by those managers who excel in a crisis.

Presently, managers need to successfully adapt to changing environmental demands and business situations, manage multiple lateral relationships, set and implement agendas, and cope with stress and uncertainty (PWC, 2015). Foremost among the many drivers of modern business organisations are the twin imperatives of effectively utilising advanced information and communications technology (ICT) as well as leveraging competent human capital. The pressure to succeed in a hyper-competitive world; the challenges of dealing with globalisation and the race for scarce resources (human, financial, informational and raw materials); environmental considerations and unprecedented regulatory considerations have cumulatively forced business organisations to manage the human capital elements, in particular, judiciously. Additionally, the rapidity, scale and complexity of change in the workplace at late require that the very foundational principles of leadership and management have to be questioned and possibly, rethought in the competitive business environment (PWC, 2015 in support of Alfred, 2011:103).

Modern global rapid changes affecting virtually every aspect of our life and work, organisational and business climate, require us to rethink the ways which organisations used until now for improving managerial issues (Bordeianu et al., 2014:609). The 2008 economic crisis and its aftermath could be considered a hard lesson about what happens if organisations do not apply their minds fully, proving that within the uncertain environment of a globalised economy some basic rules and mechanisms of the traditional market

economy no longer works. This, implicitly, shows that management does not have a "safety net" or a "panacea cure" to rely on during a globally extended economic downturn, being it in the local or international managerial sphere. Resultantly, even if just for this reason, management needs competent leaders who can successfully deal with the unprecedented challenges facing people, organisations and human society today at whole (Sabina, Cristina & Elena, 2014:566).

Organisations spend significant time and resources in recruiting, training and retaining a qualified workforce. The key challenge of measuring and ensuring a *competent* cadre of managers and leaders though remains elusive for many (PWC, 2016b). Traditionally the Ohio-based management scientists Slocum et al. (2009:4) (cited by Seely, 2015) stated that although knowledge, behaviours and attitudes are essential components of management competencies, managers need to effectively transfer this knowledge into *managerial skills* for them to become competent and efficient managers. Inversely, employee cost increases continue to assume a larger proportion of business expenditure; this means that if employee costs are not incurred productively, it could lead to a reduction in the return on this investment, which could, in turn, lead to negative staff development strategies to as a means to improve return on investment and maximise shareholders wealth (Shepard, 2016). The increasing complexity of business and managerial projects and the ever-increasing pace of change require organisations to seek business success by not only increasing personnel efficiency, no longer focusing only on the hiring of talented personnel and not only have the personnel managed by a technical project management of skilled managers. Modern organisations need management talent that can deal with ambiguity, can lead strategic initiatives that drive change in an organisation and apply an array of managerial skills on high levels to remain competitive (Seely, 2015). Organisations need to lead and direct projects and programs – not just manage them. The well-rounded project manager has not only the technical project management skills, but also the strategic and business management skills, and leadership skills (PWC, 2014).

PROBLEM STATEMENT

The changing context for leadership is perhaps best framed within the dramatic aftermath of the global financial crises of 2008: Volatile financial markets, lingering high unemployment, widening debt crises in economies globally, and eroding consumer

confidence combined to create what is widely being termed as the "new normal" (Alfred, 2011:105).

The well-known maxim "in every cloud there is a silver lining" helps to explain the ongoing chaos in the global economic downturn. Opportunistic investors have used economic downturns as buying opportunities. Similarly, businesses have used the urgency that accompanies slumps to encourage innovation and organisational renewal. Universities, and Business Schools, in particular have experienced dramatic enrolment gains in periods of economic recession. Leaders and managers, in an era of rising demand and reduced resources, need to become more adept at 'doing more with less' (Alfred, 2011:106-107). Alfred continues to specify that managers will:

- Need to generate new sources of revenue to support growth, increase the capacity and productivity of staff, win the war for talent against fast-moving rivals and build organisational cultures that embrace innovation and change;
- Be challenged to develop new organisational designs to get ahead of change; they will need to think differently about organisational success; and that they will be
- Required to innovate both in management and as organisations. Therefore, managers and leaders will be compelled to develop new skills and competencies to respond to adversity with creative solutions.

Herein lays the pivotal problem of human capital management for most organisations: to be able to scientifically measure and sensitively develop the skills and competencies required for managerial capability, competency and effectiveness within complex and demanding work settings. In other words, the challenge for organisations is to have the tools to measure, with a high degree of certainty, the skills resident in an existing or prospective manager as well as to be able to target the future management development needs of managers more sensitively.

Despite the rapidly changing roles and competencies required for managerial effectiveness, there is no well-developed and empirically supported model to actually measure competencies for superior management performance in the contemporary business environment in South Africa, in particular, and Southern Africa at large.

Although Thekiso (2011) and Shaikh (2013) have researched this area, their research needs to be refined and focused on a model that can meaningfully measure competencies of managers.

OBJECTIVES

The primary objective of this article is to evaluate existing theoretical models to measure skills for managerial competence.

This primary objective is achieved by addressing the following secondary objectives, namely to:

- Perform a theoretical study on existing model(s) to measure managerial competence;
- Evaluate the existing model(s) to determine if they are suitable for generic application to measure in different application settings;
- Empirically compare and validate the measuring criteria and constructs to ensure that it measures the relevant managerial skill;
- Ensure that an adequate sample is employed in developing the model;
- Measure the reliability of the constructs; and
- Determine the relative importance of each of the constructs in the theoretical model to measure the skills for managerial competency.

LITERATURE REVIEW: THE THEKISO MODELS

Questionnaire development

In his literature study, Thekiso (2011) drew and assimilated information from journal articles, research reports, textbooks and Internet searches covering relevant issues in management and management education, as well as its relevance to management competence. In this study, Thekiso developed a questionnaire based on the literature as measuring tool of managerial competence. Thekiso empirically validated the measuring criteria to measure managerial competence using exploratory factor analysis in an attempt to validate the criteria about each of his managerial competencies. In addition to Thekiso's validation, Shaikh (2013) also subjected the questionnaire to experts in order to ensure content and face validity.

The literature Thekiso consulted identified seven skills for managerial competence, namely: *Self-awareness skills, Self-directed career planning skills, General integrative skills, Planning and control skills, Organising skills, Learning skills,* and *Change management skills.* To measure these skills, Thekiso formulated, with the aid of literature, a total of 70 questions; 10 criteria for each managerial skill and he employed a 5-point Likert-type scale (ranging from totally disagree to agree totally) to measure these seven skills. Furthermore, 11 demographic questions were added to compile the demographic profile of the 395 respondents in his study.

The initial conceptual model to measure managerial skills for competence, developed by Thekiso is discussed below.

Thekiso's initial conceptual model to measure skills for managerial competence

The original model envisaged by Thekiso (2011) identified seven skills for managerial competence (as employed in the questionnaire and mentioned above). These skills were identified from a detailed literature review that formed the basis of his model for managerial competence. After the theoretical construction of the model, Thekiso empirically tested his hypothesised theoretical model by gathering data from a sample of 395 part-time Master of Business Administration (MBA) students from three business school campuses of the North-West University (Mafikeng, Potchefstroom and Vanderbijlpark). The importance of each managerial skill, its reliability and the interrelationships among the different skills for managerial competence, were measured. From the analyses, it was evident that all seven the skills for managerial competence were regarded as important skills in managerial competence (scoring more than 4.5 on the 5-point Likert scale).

Thekiso then attempted to empirically validate his model by subjecting the seven skills to individual exploratory factor analysis, aiming to prove that the ten measuring criteria selected from the literature indeed do measure each of the managerial skills. Also, the variance explained would also render an indication of how well these ten criteria actually do measure each managerial skill. The original Thekiso model is represented in Figure 1 below.
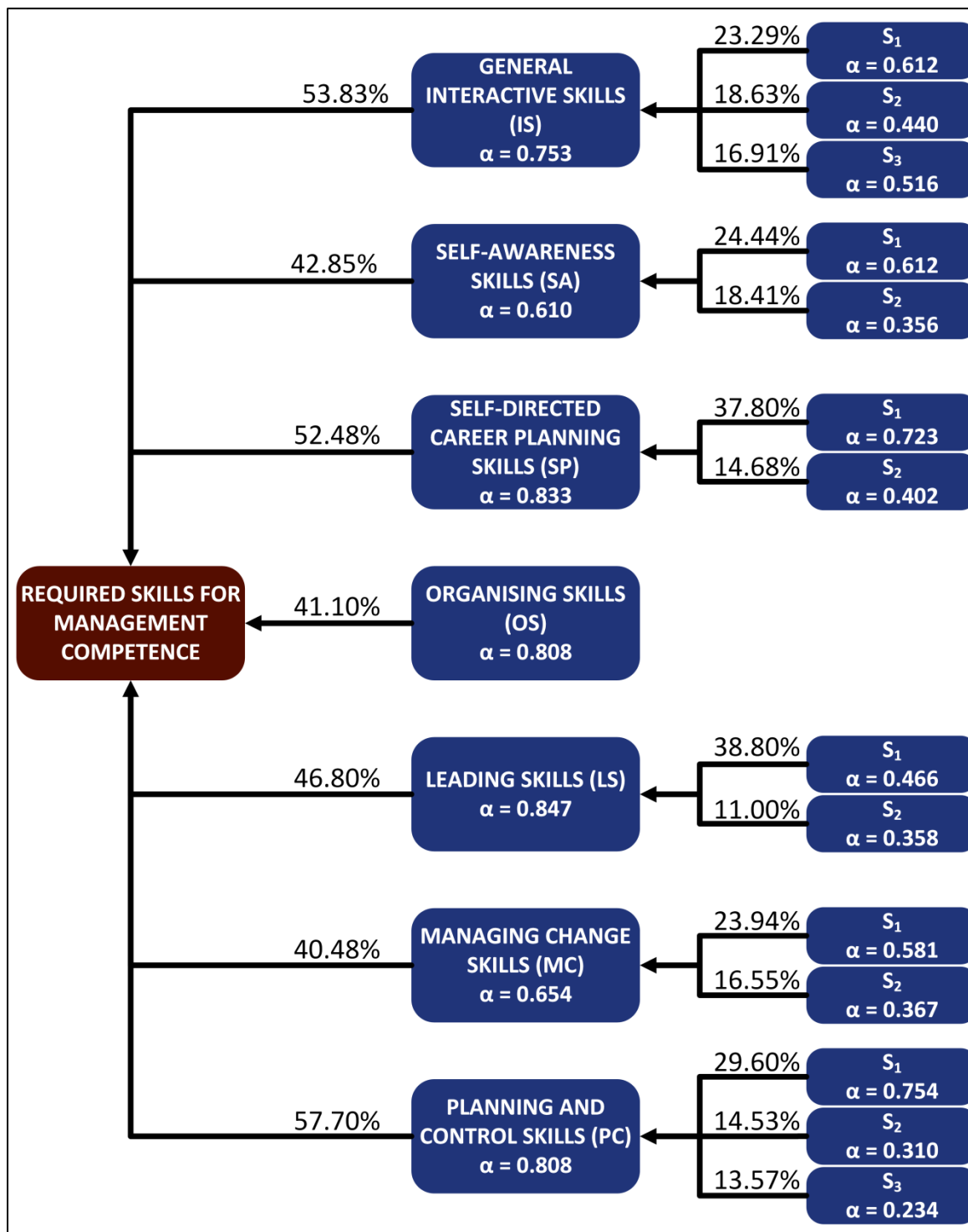
Figure 1:   **A model to measure skills for managerial competence**

Source: Thekiso (2011)

The results indicated that the Thekiso model, although it seems to consist of seven managerial competence skills, actually breaks up into more sub-skills. This indicated that the seven skills are not the only required skills being measured as postulated by the theory.

Also, these skills show relatively poor variance explained; all failed to reach the so-called "good fit of the data" of 60% variance explained (Field, 2009:672).

The results also indicated that there were some unreliable factors. Only two skills exceeded a Cronbach Alpha coefficient of 0.70 (excellent); three skills exceeded 0.58 (minimum reliability level for the study), while two skills were unreliable (falling below the 0.58 lower margin of reliability) (Cortina, 1993:98 as cited by Field, 2009:668). These two skills (*Leading skills* and *Organising skills*), having been found to be unreliable in Thekiso's study, are less likely to represent themselves in repetitive studies of a similar nature, signifying a warning in possible future applications of the model in measuring managerial competence. Also, low-reliability coefficients were recorded, and some questions also had to be discarded. The unsatisfactory reliability coefficients forced Thekiso (2011:174) to conclude that the conceptual model has failed theoretically.

As a result, Thekiso's study explored another avenue of research, namely to attempt to identify the underlying constructs of managerial and leadership competence using exploratory factor analysis.

Thekiso's revised conceptual model to measure skills for managerial competence
Thekiso's alternative approach was to subject the data to suitability testing. Firstly, he ensured sample adequacy (using the Kaiser, Meyer & Olkin test of sample adequacy) and, secondly, he tested if sphericity between the variables does not exist (using Bartlett's test). After successful results, Thekiso proceeded to subject the data to exploratory factor analysis. The results of the analysis are reflected in Figure 2 below.
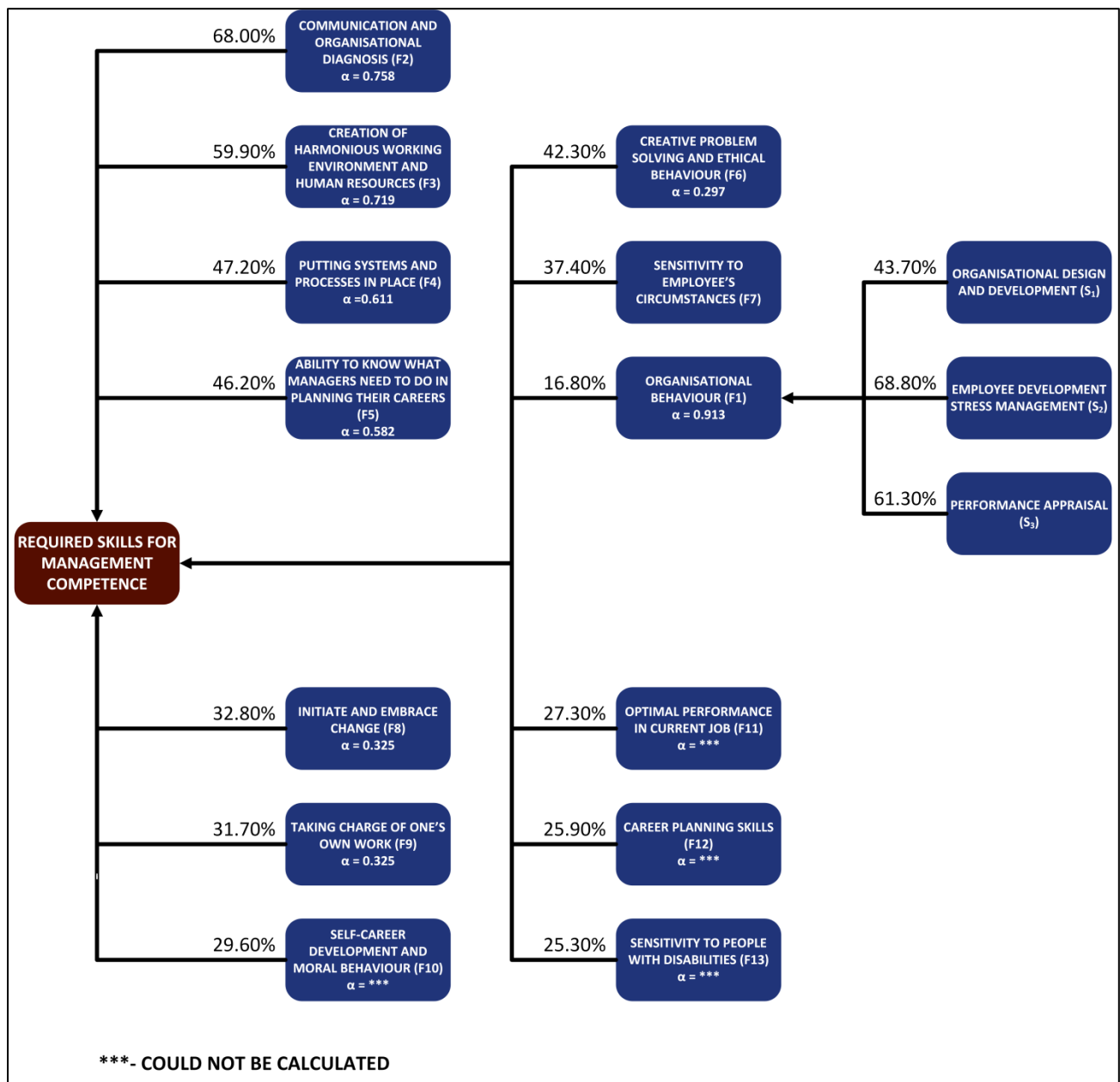
Figure 2:   A revised model to measure skills for managerial competence

Source: Thekiso (2011)

The model illustrates the factors, sub-factors of Factor 1, and their respective reliability coefficients.

Factor analysis

The factor analysis identified thirteen factors. This meant that there were thirteen underlying dimensions (and not seven as originally theorised) that were identified as separate factors that relate to managerial skills. In addition, the analysis also showed that the most important factor (Organisational behaviour) in fact consists of three sub-factors. The thirteen factors explained a favourable cumulative variance of 64.10%, which signified a "good fit to the data" according to Field (2009:668).

Using Cronbach's Alpha coefficients for each of the thirteen factors, Factors 4 and 5 returned coefficients ranging above 0.58 but lower than 0.70, signifying reliability, while factors 6, 8 and 9 had unreliable coefficients below 0.58. Factors 7, 10, 11, 12 and 13 consist of single statements and the reliability coefficients could not be calculated.

The thirteen factors, their variance explained, and their reliability are noted in Table 1 below.

Table 1:   Thekiso's factors of managerial competence

Factor & Sub-factor	Name of factor	Variance explained	Cronbach Alpha
F1	Organisational behaviour	16.8%	0.913
SF 1	*Organisational design & development*	*43.70%*	***
SF 2	*Employee development stress management*	*6.88%*	***
SF 3	*Performance appraisal*	*6.13%*	***
F2	Communication and Organisational diagnosis	6.80%	0.758
F3	Creation of harmonious working environment & Human resources	5.99%	0.719
F4	Putting systems and processes in place	4.72%	0.611
F5	Ability to know what managers need to do in planning their careers	4.62%	0.582
F6	Creative problem solving & ethical behaviour	4.23%	*0.297*
F7	Sensitivity to employee's circumstances	3.74%	***
F8	Initiate and embrace change	3.28%	*0.325*
F9	Taking charge of one's own work	3.17%	*0.325*
F10	Self-career development & moral behaviour	2.96%	***
F11	Optimal performance in current job	2.73%	***
F12	Career planning skills	2.59%	***
F13	Sensitivity to people with disabilities	2.53%	***

F = Factor; SF = Sub-factor; *** not calculated due to limited criteria

Reliability

From the analysis, it seemed that Thekiso's second attempt to identify the skills for managerial and leadership competence succeeded. Not only did he successfully explain the required variance, but also succeeded to extract the five more important factors reliably. Factors 1, 2 and 3 exceeded the minimum higher level Alpha coefficients of 0.70, and Factors 4 and 5 exceed the lower Alpha coefficient set by Cortina (1993:98) (in Field, 2009:66) at 0.57. Only Factors 6, 7 and 8 did not return satisfactory reliability coefficients.

Based on the second model which showed more promise, this study employed the second Thekiso model to measure the skills for managerial and leadership competence in KwaZulu-Natal and Gauteng amongst business school educated managers.

RESEARCH METHODOLOGY

The questionnaire developed by Thekiso (2011) was employed to gather data to measure the skills for managerial competence. The pre-coding, as developed by Thekiso (2011), on all the questions of the seven management skills were retained. The population was all MBA students in the KwaZulu-Natal and Gauteng provinces studying at the Management College of Southern Africa (MANCOSA) towards an MBA programme. Although MANCOSA offers the MBA in more than ten different locations in Southern Africa, the two largest study centres (Durban in the KwaZulu-Natal province and Johannesburg in the Gauteng province) were selected to gather data from. The sample is, therefore, a non-probability, convenience sample. The data were gathered by distributing the questionnaires during MBA lecture sessions in Durban and Johannesburg. Students not attending these sessions due to work-related or other reasons received the questionnaire electronically using Survey Monkey. Participation in the study was voluntary and anonymous. Table 2 summarises the response rates and some respondents.

Table 2:   Data collection

Campus	Questionnaires Distributed	Questionnaires Received	Response Rate (%)
Durban	142	128	90.14
Johannesburg	167	154	92.22
Survey Monkey	200	66	33.33
TOTAL	**509**	**348**	**68.47**

A favourable average response rate of 68.47% was achieved because the researcher personally performed the distribution and collection of the questionnaires in both Durban and Johannesburg campuses. Noteworthy is the lower response rate from the electronically distributed questionnaires (33.33%).

Preventative measures to attempt to minimise the problems normally associated with self-administered questionnaires were followed in this study. This was achieved by ensuring that lecturers and administrators acted as facilitators, largely to clarify questions when questionnaires were administered in class.

The data collected was statistically analysed using the specialised software Statistical Package for Social Sciences (SPSS) (version 22 of 2014). The suitability of the data for multivariate analysis was assessed using Bartlett's test of sphericity, while the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used to determine if the sample was adequate statistically. Exploratory Factor Analysis (EFA) was used to identify the underlying constructs and to determine the relative importance of each construct. Reliability was determined using the Cronbach Alpha coefficient.

RESULTS

Factor identification

The data were subjected to exploratory factor analysis to identify the underlying constructs. The aim was to extract and compare the factors with that identified by Thekiso. If these factors compared favourably, it would validate the findings as published by Thekiso in his second model. In factor analysis, the sample adequacy and sphericity need to be confirmed to ensure that the data are suitable for analysis. The results appear in Table 3.

Table 3:   KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**.914**
Bartlett's Test of Sphericity	Approx. Chi-Square	8797.589
	df	2211
	Sig.	**0.000**

From the table, it is clear that the sample adequacy is excellent (0.914) because the KMO value exceeds the required 0.70 with ease. Also, the sphericity is below the margin of 0.05. The data are thus confidently subjected to exploratory factor analysis (Field, 2009:666). Only factor loadings of 0.4 and higher were retained in the analysis.

The factor analysis did not identify similar factors to that of Thekiso. This means that the Thekiso model is not generalistic in nature, and cannot be operationalised to all managers. Also, this means that to measure the skills for managerial and leadership competence for

the MANCOSA educated managers, a new factor model is required. This model is developed from the results obtained from the factor analysis.

The analysis identified two factors explaining 37.83% of the variance (not achieving the desired 60% variance explained). Closer inspection, however, reveals that factor 1 explains 31.73% and consists of the majority of measuring criteria. Factor 2 explains only 6.09% of the variance. This means that Factor 1 is more important and that it probably consists of sub-factors. Table 4 shows the variance and cumulative variance explained by the factors.

Table 4:   Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	21.264	31.737	31.737	21.264	**31.737**	31.737
2	4.080	6.089	37.826	4.080	**6.089**	**37.826**

Factor 1 and its sub-factors

The results suggest that Factor 1 needs to be explored further to ascertain if it consists of sub-factors. The criteria about Factor 1 were isolated and analysed further. As expected, Factor 1 identified a further seven sub-factors. The factor's variance explained appears in Table 5 while Table 6 shows the Varimax rotated factor matrix of the seven sub-factors.

Table 5:   Total variance explained by factors

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Var	Cum %	Total	% of Var	Cum %	Total	% of Var	Cum %
1	17.099	40.711	40.711	17.099	40.711	40.711	8.657	**20.613**	20.613
2	1.846	4.394	45.106	1.846	4.394	45.106	4.099	**9.760**	30.372
3	1.416	3.372	48.478	1.416	3.372	48.478	2.730	**6.500**	36.872
4	1.324	3.153	51.630	1.324	3.153	51.630	2.578	**6.138**	43.010
5	1.152	2.742	54.372	1.152	2.742	54.372	2.553	**6.079**	49.089
6	1.072	2.553	56.925	1.072	2.553	56.925	2.355	**5.607**	54.696
7	1.025	2.439	59.365	1.025	2.439	59.365	1.961	**4.669**	**59.365**

The sub-factors explain a total of 59.36% of the variance explained by Factor 1. Once again, the core of Factor 1 is embedded within the first sub-factor identified that explains 20.61% of the 50.36% total variance. The factor table below shows the criteria and their factor loadings. Criteria possessing factor loadings below 0.40 were discarded. Strong dual-loading criteria were also eliminated from the factors (Bisschoff & Moolla, 2015:100).

Table 6:   Rotated Component Matrix: Sub-factors extracted from Factor 1

Criteria*	Component 1	2	3	4	5	6	7
PC 3	.766						
LS 2	.688						
OC 3	.655						
PC 5	.652						
OC 8	.633						
LS 5	.631						
IS 1	.609						
PC 10	.608						
LS 4	.573						
OC 9	.563						
IS 8	.551						
IS 5	.541						
SP 1	.538						
SP 5	.519						
LS 3	.516						
SA 2	.511						
LS 8	.508						
SP 10	.492						
IS 10	.486						
LS 7	.483						
PC 2	.483						
OC 10	.440						
OC 5	.415						
MC 9		.643					
OC 6		.639					
LS 9		.587					
PC 9		.583					
PC 6		.467					
LS 10			.688				
SA 8			.455				
SA 6			.440				

Criteria*	Component						
	1	2	3	4	5	6	7
MC 2				.693			
SA 5				.478			
SP 2				.467			
SA 4					.738		
IS 4					.601		
OC 7					.437		
SP 4						.660	
SP 3						.617	
LS 6							.615
SP 8							.542

See Appendix A for criteria definitions

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 22 iterations.

Factor 2

Factor 2 consists of four criteria and explains 6.09% of the variance. These criteria pertain to *Ethical skills and external influences*. Hence the factor was labelled as such.

Table 7:   Rotated Component Matrix: Sub-factors extracted from Factor 2

Criteria*	Component
	1
IS 6	.687
IS 7	.658
SP 7	.561
MC 6	.537

See Appendix A for criteria definitions
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 12 iterations.

The different factors and sub-factors were all labelled according to the criteria loading onto them. The dominant Factor 1 was labelled *Managerial skills*, while each one of the sub-

factors was also labelled accordingly to the criteria. The names of the factors and sub-factors and their respective reliability coefficients appear in the table below.

Table 8:   Names and the reliability coefficients of the factors

Factors	Name of factors	Cronbach Alpha
Factor 1	Managerial skills	0.952
Sub-factor 1	*Managerial maturity & workplace effectiveness*	*0.920*
Sub-factor 2	*Conceptual skills*	*0.738*
Sub-factor 3	*Personal image*	*0.588*
Sub-factor 4	*Personal value system*	*0.644*
Sub-factor 5	*Awareness of emotional & physical barriers*	*0.612*
Sub-factor 6	*Career awareness*	*0.698*
Sub-factor 7	*Incentives & networks*	*0.537*
Factor 2	Ethical and external influences	0.684

From the table above, it is clear that the factors have satisfactory reliability coefficients. Only Sub-factor 7 shows low reliability with its coefficient below the secondary margin of 0.57. It is also evident that the more important factors (according to variance explained), namely Factor 1 and the sub-factors 1 and 2 have high reliability coefficients exceeding 0.70, while the other sub-factors and Factor 2 exceeds the 0.58 secondary margin with ease. The results are displayed in model format in Figure 3.
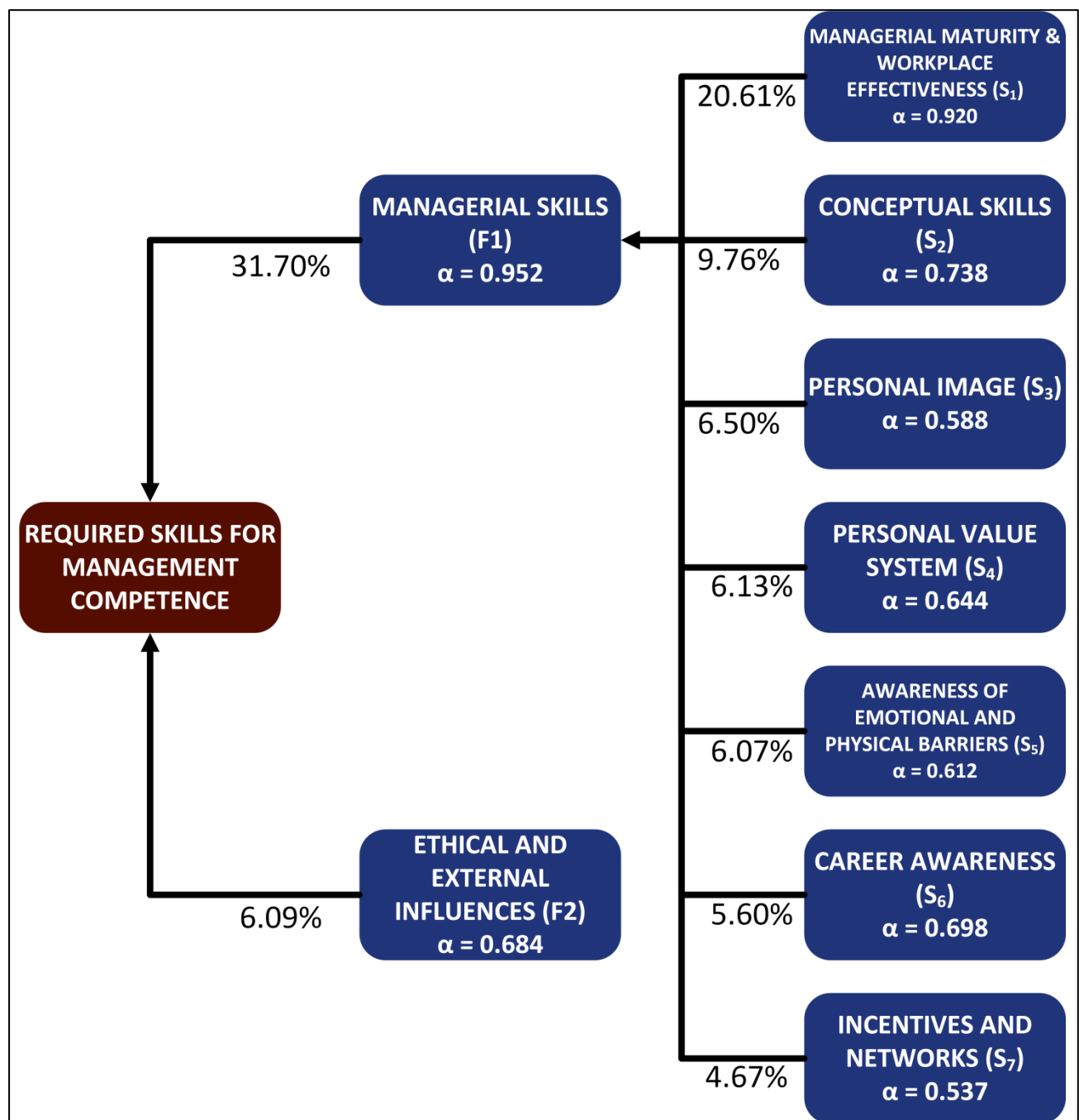
Figure 3: A model to measure skills for managerial competence at Mancosa

Source: Shaikh (2013)

The model represents the results of the study to measure the skills for managerial competence of MBA managers educated by MANCOSA at their KwaZulu-Natal and Gauteng campuses. The model developed from this data differs significantly, particularly in the factor sub-structure, from that of Thekiso's (2011) initial as well as his second attempt models. This means that to measure skills for managerial competence at other business

models, the concept of Thekiso to develop a model that can measure the skills for managerial competence needs to be re-opened and further analysed to determine if a generic model could be developed. At present this research has indicated that the existing model is not capable of doing so.

DISCUSSION

In an era of profound complexity and ambiguity in the workplace, organisations place new and increasing demands on managers to develop new competencies to drive business success and manage rapidly changing organisational contexts. Effective and competent managers have thus become the mainstay for organisational renewal and realignment of business strategies for greater relevance in hyper-competitive environments. Managers have to generate new sources of revenue to fuel growth, continually increase the productivity of staff and develop innovative organisational cultures to respond to adverse business conditions and competitive challenges proactively. Amongst an array of possible interventions, organisations can meaningfully achieve this by ensuring a well-trained management pool through effective management development and training. The main theme of this research, measuring managerial competencies for effective managerial performance is located in this context.

While McClelland (1973), according to Dubois and Duquesne (1993:38), is credited with initiating the idea of *competency frameworks* and introducing it into human resource literature, Boyatzis (1982) is credited with popularising the term in his book "The Competent Manager". Resultantly, in the last three decades, researchers began looking at the identification of core competencies of managers and the development of models to measure managerial skills for managers across a range of sectors. According to Quin (2004), effective managers are those who have the potential to play multiple and even contradictory leadership roles; and those managers who are effective in all roles are 'master managers'. This mastery in managerial performance is highlighted by the seminal work of Quin and Rohrbaugh (1983) (as cited by Scott et al., 2003) where they presented eight managerial roles and 24 competencies based on their research on *The Competing Values Framework*. According to this framework, the following eight roles are key to developing master managers: mentor, facilitator, monitor, coordinator, director, producer, broker and innovator. In another study by Govender and Parumasur (2010), managers at a

public sector organisation in the city of Durban in KwaZulu-Natal (South Africa) were assessed for the extent to which they possess these eight managerial competencies needed for effective management. Govender and Parumasur (2010) also investigated the extent to which these eight critical managerial competencies are influenced by demographical variables such as managerial level, age, race, tenure and gender. Their findings suggest that managers varying in the demographical variables do differ significantly in the extent to which they possess and display various managerial competencies. The results indicated that senior-level managers possess a significantly higher level of 'director competencies' than their middle and lower level management colleagues. This supports views by Smale and Frisby (1990) in the late 80's who noted that differences between perceived proficiency in several managerial competency areas among employees from different levels of management do exist. McGregor and Tweed (2001) also noted significant differences between male and female managers about specific managerial competencies (an issue neither Thekiso nor Shaikh specifically explored). It is noteworthy that managerial and leadership competence gender differences are another similarity in the findings of Govender and Parumasur (2010).

More recently, a fundamental study by Shavelson (2013) presents an approach to measure managerial and leadership competence itself, and to statistically model the reliability and validity of scores produced in competency measurements. Shavelson (2013) argues that a *construct of competence*, "…is an idea, a construction created by societies; and therefore is not directly observable". Instead, it is inferred from observable performance on a set of tasks sampled from a domain of interest, such as a job or an educational discipline. Thus, he argues, it requires generalisability in theory, which can be used to evaluate the quality of competence measurements; supporting the very nature of latent variables as competency drivers.

Whilst a number of researchers (Wigdor & Green, 1991; Weinert, Cudney & Spring, 2008; Alexander and Al-Moaibed, 2013; Thekiso 2011; Moaibed 2013; Shaikh, 2013) have suggested competency models and frameworks for managers in a wide range of jobs and sectors, Shavelson (2013) suggests that competency measurements should meet certain criteria:

1. Tap into complex physical and/ or intellectual skills and...

2.   Produce an observable performance using a common...

3.   A standardised set of tasks with ...

4.   High fidelity to the performances observed in 'real-world' situations from which inferences of competence can be drawn, with scores reflecting ...

5.   The level of performance on tasks in which ...

6.   Improvement can be made through the deliberate practice thereof …

Shavelson's research (2013) therefore attempts to develop a centre of gravity around which new advances in measurement methods and theories of competence could be grounded. His key idea is to establish if one can validly and reliably interpret the presence or absence of competence in performance measurement models, based on a standard of performance above which a person is judged to be competent or not.

The methodology of this study compares favourably with a similar study undertaken at a business school in Saudi Arabia, which sought to measure managerial competencies for students studying towards a management qualification (Alexander & Al-Moaibed, 2013). A self-assessment questionnaire was designed and administered to management education students that listed some characteristics that are representative of the core dimensions of five basic managerial competencies gleaned from a literature review. These five basic managerial competencies are *Communication Competency, Planning and Administration Competency, Teamwork Competency, Multicultural Competency* and *Self-Management Competency*. In this study, the respondents, who were students, indicated above average scores on four of the five dimensions. The highest scores were obtained for the *Self-Management Competency*. It is interesting to note that this latent variable also (similar to the findings of Thekiso and Shaikh) further divided into sub-variables (or sub-factors). In total *Self-Management Competency* included four underlying sub-factors namely: *Integrity and ethical conduct, Personal drive and motivation, Balancing work and life issues* and *Self-awareness*. This indicates that the existence of sub-factors within latent variables, also in managerial studies, are common, and yields support to the statistical techniques to identify these sub-factors, supporting the use of exploratory factor analysis.

SUMMARY

The results and the outcomes of this study are significant in that it relates to some key points of departure with the Thekiso initial and the revised models. These points of departure, in the main, are:

1. Thekiso's initial conceptual model failed in this particular application setting to validate itself as a reliable conceptual model to measure skills for managerial competencies.

2. Thekiso's study was conducted in a public university business school setting. This could imply that the profile of MBA students in Thekiso's sample may differ from that of this study.

3. As a corollary to Point 2 above, the profile of MBA students, in a privately-owned business school, could differ equally significantly from that of a public university business school; thereby delivering differing results.

4. The empirical results of both Thekiso's initial and revised models show that neither of these conceptual models has been validated as effective models for measuring managerial and leadership competence of business school educated managers.

5. Thekiso's revised model found there were a number of sub-factors for some managerial skills that were not foreseen in his initial model. This sub-factor design has also focussed in Shaikh's (2013) research as well as in this study. In support of similar findings by other managerial behaviour researchers (Alexander & Al-Moaibed 2013; Bisschoff & Moolla, 2015 and others), it can be concluded that further latent variables (or sub-factors) could be expected as drivers in managerial behaviour research.

The objective of this study was to determine if Thekiso's model(s) could be operationalised and used to measure the skills for managerial and leadership competence among managers studying at a business school in South Africa. The unambiguous finding is that the Thekiso model is not fit to do so. The model seems to be specific to its sample. This is statistically confirmed by the many factors possessing low reliability coefficients. The second attempt to develop a revised model also did not show promise towards generalisation and operalisation of the model either. The fact that this research rendered different results and factors also indicates that the revised model did not succeed in its initial aims to become a generalised model for use in different application settings. The

model, however, did render a satisfactory analysis of its specific application at a public university's business school and went a long way to measure the skills for managerial competencies in that specific application setting (explaining a cumulative variance of 69.56%).

This study indicated that even a model to measure skills for managerial and leadership competence is still not achieved in a generalised application setting. Although the model shows good reliability, there is a problem with its low total variance explained (37.82%). This means that the model does not sufficiently measure the skills for managerial and leadership competence with the measuring criteria employed. As a result, it would seem that the questionnaire with its seven skills for managerial competency is not succeeding to measure the managerial skills efficiently. This means that further research should be aimed at the questionnaire and its measuring criteria. The results obtained by Thekiso, and also in this study, have already discarded some measuring criteria and have also identified other criteria to be important ones to retain in future research on skills for managerial competence.

The results from this study are satisfactory in that it goes beyond subjecting managers to existing generic managerial competency frameworks and attempts to build a new model to measure the managerial competency of business school educated managers, based on empirical data. Although far from being a generic model that can apply in different settings, it does provide a clear scientific base from which further development and refinement can take place.

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Appendix A: Leadership skills criteria

	1. Self-awareness skills	
	Questions	Source
1	It is important for me to try very hard to improve on my past performance at work.	Steers and Braunstein (1976)
2	It is important for me to know how I am progressing as I complete tasks at work.	Steers and Braunstein (1976)
3	It is important to talk to those around me about non-work matters.	Steers and Braunstein (1976)
4	It is important for me to be able to read people's true emotions correctly through their eyes.	Lennox and Wolfe (1984)
5	It is important for my powers of intuition to be quite good when it comes to understanding others' emotions and motives.	Lennox. and Wolfe (1984)
6	It is important for me to have the ability to control the way I come across to people, depending on the impression I wish to give them.	Lennox and Wolfe (1984)
7	It is important for me to work to gain more control over the events around me.	Steers and Braunstein (1976)
8	It is important for me to value educational reading, television, and self-improvement programmes.	Lussier (1997)
9	I can tell if a person is lying to me at once from the person's manner of expression.	Lennox and Wolfe (1984)
10	Compared to my work colleagues, I can do most tasks very well.	Chen, Gully and Eden (2001)
	2. Self-directed career planning skills	
	Questions	Source
1	It is important for me to know how to manage my career.	Adapted from Bloisi *et al.* (2003:271)
2	In planning my career, it is important that I make a mission statement that expresses my philosophy and central values.	Adapted from Bloisi *et al.* (2003:271)
3	In planning my career, it is important that I establish and visualise my goals beginning with the end.	Adapted from Bloisi *et al.* (2003:271)
4	In planning my career, it is important that I be aware of the career stages that I have got to go through.	Adapted from Bloisi *et al.* (2003:271)
5	In planning my career, it is important that I communicate a positive attitude.	Adapted from Bloisi *et al.* (2003:271)
6	In planning my career, it is important that I perform in my present job instead of focusing on the job ahead.	Adapted from Bloisi *et al.* (2003:271)
7	In planning my career, it is important that I capitalise on luck and build on setbacks.	Adapted from Bloisi *et al.* (2003:271)

8	In planning my career, it is important that I develop networks.	Adapted from Bloisi *et al.* (2003:271)
9	In planning my career, it is important to find a mentor and be a mentor myself.	Adapted from Bloisi *et al.* (2003:271)
10	In planning my career, it is important to know that helping others achieve success is an important attribute of successful managers and professionals.	Adapted from Bloisi *et al.* (2003:271)
3. General integrative skills	
	Questions	Source
1	It is important to acknowledge that communication is the glue that holds an organisation together.	Own, based on Mayfield and Mayfield (2004:48).
2	It is important to get over stage fright and gain self-confidence by learning and doing presentations in the classroom.	Own, based on Mayfield and Mayfield (2004:49)
3	It is important for managers to understand that it is difficult for some employees to put in overtime hours without substantial notice, to work weekends, to be gone overnight on business, or to accept a transfer to a new location.	Own, based on Chen *et al.* (2004:31)
4	It is important to understand that physical barriers such as narrow doorways or stairs can be troublesome for some employees.	Own, based on Chen *et al.* (2004:31)
5	It is important that managers be sure that employees are sensitive to co-workers and to be observant of overt expressions of sexism, racism, ageism, and more subtle biases within the workgroup.	Own, based on Chen *et al.* (2004:31)
6	Managers can accept gifts from customers/suppliers in exchange for giving them business.	Lussier, 1993:297
7	The manager can use a company phone to make personal long distance calls.	Lussier, 1993:297
8	It is important to learn how to manage and deal with stress.	Own, based on Drucker, 2002:92
9	I believe that incompetent management is the largest cause of workplace stress for subordinates.	Own, based on Drucker, 2002:92
10	It is important for one to effectively manage one's time to reduce stress.	Own, based on Drucker, 2002:92

	4. Planning and control skills	
	Questions	Source
1	I believe it is important that a manager agrees on plans and goals with his/her subordinates.	Own, based on Turkey and Brewer, 2002:84.
2	I believe it is important that plans and goals be renegotiated and agreed upon based on the changes in the business environment.	Own, based on Turkey and Brewer, 2002:84.
3	It is important that goals agreed upon be reasonable, achievable and measurable.	Own, based on Bowman and Hurry, 2001:763.
4	It is important that agreed goals be evaluated to ensure that goals are being accomplished as planned and deviations are corrected.	Own, based on Manz and Neck, 2004:89.
5	It is important that set goals be compared against the actual performance when evaluating performance.	Own, based on Manz and Neck, 2004:89.
6	It is important that I know how to solve organisational problems creatively.	Own, based on Manz and Neck, 2004:89.
7	It is important that I be taught how to use my time efficiently.	Own, based on Drucker, 2002:95.
8	A lack of conflict in the organisation can make an organisation static non-responsive to the needs of change and innovation.	Own, based on Wilmot and Hocker, 2001:37.
9	It is important that I have skills to maintain an optimum level of conflict in my operational settings.	Own, based on Wilmot and Hocker, 2001:37.
10	It is important that I have the skills to guide employees in productive problem-solving efforts, to learn and profit from it.	Own, based on Wilmot and Hocker, 2001:37.
	5. Organising skills	
	Questions	Source
1	I believe that work designing is very much a job of a manager, and it is important that I be trained on how to go about designing work.	Own, based on Ball, 2005: A5
2	It is important for me to be skilled on how to conduct organisational diagnoses.	Own, based on Williams, 2009a:102
3	It is important for me to know how to conduct employee selection.	Own, based on Lawson, 2000:128
4	It is important for me to know how to identify people needed to create high profile teams.	Own, based on Fuller and Mansour, 2003:427
5	It is important for me to know how to design work for my team.	Own, based on Ball, 2005: A5.
6	It is important for me to know how to modify the organisational culture.	Own, based on Williams, 2009a:102
7	It is important for me to know how the selection process operates.	Own, based on Lawson,

		2000:128
8	It is important for me to know how to determine training gaps, and to put training plans in place.	Own, based on Lawson, 2000:131
9	It is important for me know how to develop a high-profile team.	Own, based on Fuller and Mansour, 2003:63
10	I think a manager must develop his/her subordinates.	Own, based on Lawson, 2000:131

6. Leading skills		
	Questions	Source
1	I think it is important for managers to focus their attention on irregularities, mistakes, exceptions, and deviations from what is expected of their subordinates.	Den Hartog, VanMuijen and Koopman, 1977
2	I think it is important that managers serve as role-models for their subordinates.	Den Hartog, VanMuijen and Koopman, 1977
3	It is important that managers be trusted to help their subordinates overcome any obstacles.	Den Hartog, VanMuijen and Koopman, 1977
4	It is important for managers to make their subordinates aware of strongly held values, ideals, and aspirations which are commonly shared in the organisation.	Den Hartog, VanMuijen and Koopman, 1977
5	It is important for managers to mobilise a collective sense of organisational mission.	Den Hartog, VanMuijen and Koopman, 1977
6	It is important for managers to work out agreements with their subordinates on what they will receive if they do what needs to be done.	Den Hartog, VanMuijen and Koopman, 1977
7	It is important for managers to articulate a vision of future opportunities to their subordinates.	Den Hartog, VanMuijen and Koopman, 1977
8	It is important for managers to talk optimistically to their subordinates about the future.	Den Hartog, VanMuijen, and Koopman, 1977
9	It is important for managers to engage in words and deeds that enhance their image of competence.	Den Hartog, VanMuijen and Koopman, 1977
10	It is important for managers to instil pride in being associated with him or her.	Den Hartog, VanMuijen and Koopman, 1977

7. Managing change		
	Questions	Source
1	I believe that an expert who does not come up with a definite answer probably doesn't know too much.	Adapted from Budner (1962), Lewin (1947), and Kotter (1996).
2	I believe that there is really no such a thing as a problem that can't be solved.	Adapted from Budner, S. (1962), Lewin, (1947), and Kotter (1999).
3	I believe that people who fit their lives into a schedule, probably miss most of the joy of living.	Adapted from Budner (1962), Lewin (1947), and Kotter (1999).
4	I believe that a good job is one where it is always clear what is to be done and how it is to be done.	Adapted from Budner (1962), Lewin (1947), and Kotter (1999).
5	I think I would like to live in a foreign country for a while.	Adapted from Budner (1962), Lewin (1947), and Kotter (1999).
6	I believe that a person who leads an even, regular life in which few surprises or unexpected happenings arise really has a lot to be grateful for.	Adapted from Budner (1962), Lewin(1947), and Kotter (1999).
7	I believe it is more fun to tackle a complicated problem than to solve a simple one.	Adapted from Budner (1962), Lewin (1947), and Kotter (1999).
8	I believe that people who insist on a yes or no answer, just don't know how complicated things really are.	Adapted from Budner (1962), Lewin (1947), and Kotter (1999).
9	I believe that the sooner everyone acquires similar values and ideas, the better.	Adapted from Budner (1962), Lewin (1947), and Kotter (1999).
10	I believe that teachers or supervisors who hand out vague assignments give one a chance to show initiative and originality.	Adapted from Budner (1962), Lewin (1947), and Kotter (1999).

(The original sources as used by Bisschoff & Thekiso was retained)

Source: Bisschoff & Thekiso (2012)

CHAPTER 3

ARTICLE 2:

A theoretical model to measure managerial and leadership competence of business school educated managers

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A theoretical model to measure managerial and leadership competence of business school educated managers

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Abstract

A theoretical model to measure managerial and leadership competence was developed by evaluating two previous models with similar aims. In addition to the original eight management competencies, another eight competencies were identified and applied to determine the management competencies needed in the Fourth Industrial Revolution with its fast-changing business environment. The article narrows down eleven management competencies and develops measuring criteria for each; in total 42 criteria. The eleven business competencies are leading change, cultural intelligence, team building, conflict management, communication skills, a global leader mindset, emotional intelligence, career awareness, personal value system, and external and ethical influences. The model is a theoretical model and presents management competencies relevant to the modern business environment where the challenges offered by the Fourth Industrial revolution, artificial intelligence result in constant change. The value of this study resides in a strong theoretical basis for post-modern business environmental skills that managers need to maintain completeness of their organisations as well as providing a sound point of departure for other researchers of managerial competence.

Key terms: theoretical model, competence, skills, management, leadership, competence, development, Fourth Industrial Revolution, competitiveness.

JEL Code: M10

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[2] This article stems from the doctoral research by Ahmed Shaikh (student number: 27032388) at the NWU School of Business and Governance, North-West University, Potchefstroom, South Africa.

INTRODUCTION

"The global economy stands on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academia and civil society."

(Schwab, 2016).

Schwab (2016), in his address at the World Economic Forum Annual Meeting, refers to the influence of the Fourth Industrial Revolution on the global economy. This revolution is characterised by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres. The speed of current scientific breakthroughs has no historical precedent, and the breadth and depth of these changes herald the transformation of entire systems of production, management, and governance (Manyika, 2017). Moreover, the Fourth Industrial Revolution has disrupted almost every industry in every country. Manyika (2017) goes on to argue that these technologies also raise difficult questions about the broader impact of automation of jobs, skills, wages, and the nature of work itself. The opportunities and challenges that originate from the technologies enabled development of automation, such as robotics and artificial engineering, brings the promise of higher productivity, increased efficiencies, safety and convenience. For policymakers, business leaders, managers and workers at large, these shifts create considerable uncertainty alongside with the potential benefits.

The Fourth Industrial Revolution has the potential to raise global income levels and improve the quality of life for populations around the world. In the future, technological innovation will also lead to a supply-side miracle, with long-term gains in efficiency and productivity. Transportation and communication costs will drop, logistics and global supply chains will become more effective, and the cost of trade will diminish, all of which will open new markets and drive economic growth (Brynjolfssen & McAfee, 2014:12). At the same time, however, these authors have pointed out that the revolution could yield greater inequality, because it has the potential to disrupt labour markets particularly. Here Schwab

(2016) argues that in the future, talent, more than capital, will represent the critical factor of production. This will increasingly segregate the job market into clear segments where low-skills earn low pay, and high skills earn high pay.

A key challenge, therefore, to most organisations today, both public and private, is the demand to deal with the acceleration of innovation and the velocity of disruption where management strategy becomes a continuous activity that also includes constant mission adjustments (Anderson, 2017). Here for those in leadership and management roles, this translates into a need to upgrade their knowledge and skills constantly. In turn, this means that organisations must be able to target knowledge and skills training accurately, quickly and cost-effectively. In this context, it is imperative for organisations to develop a comprehensive framework that delineates a distinct hierarchy of skills and knowledge, or competencies, needed by managers in an organisation.

PROBLEM STATEMENT

Business managers are faced with the globalisation of business, rapid technological change, constant re-organising and competence-based competition (Botes, 2014:145). These developments challenge their skills, competencies and capabilities. Here Daft and Marcic (2013:76) argue that the performance culture in a business largely depends on the effectiveness of its managers to establish a performance-driven attitude among employees within the challenging environment they operate in. Globalisation has also created the demand for global leadership competencies among business leaders. This, in turn, has made the development of global leadership competencies a crucial measure of any business education programme in the 21st century (Cumberland & Alagaraja, 2016).

The modern global business environment, as described by Walker, Walker and Schmitz (in Katulwa, 2016:65), consists of a series of complex, interdependent developments which include unyielding competitive pressures, rapid market shifts, major acquisitions or mergers, the lowering of trade barriers, decreasing transport costs, heightened expectations on the part of customers and employees, advances in communication and information technology, global access to capital markets and inflation-driven staff reductions. Hitt and Ireland stated, back in 2005, that the knowledge economy was perceived as being complex, challenging and filled with competitive opportunities and

threats (Katulwa, 2016:27). The turbulence and complexity carried forward from the 1980s and 1990s culminated in a "new competitive landscape" where the business environment was unpredictable and constantly changing. This changing business environment demands changing roles for business managers and leaders; hence the need for a new set of competitive capabilities.

In an attempt to gauge competencies, Tubbs and Schulz (2006:489) developed the taxonomy of global leadership competencies upon which leadership development efforts could be focused. This taxonomy of leadership and meta-competencies included teamwork and fellowship, understanding the big picture, attitude is everything, leadership as the driving force, innovation and creativity, communication of the leader's voice and, leading change. Just before these researchers, McCauley and Van Velsor (2004:13-15) identified and studied several leadership challenges that should be incorporated in management education and leadership development. Their challenges included leading diverse teams, being adaptable to the changing world of work, transferring knowledge and coaching subordinates, encouraging collaboration and communication, and dealing with complexity. This study was carried out by their Center for Creative Leadership (CCL) among African managers. Today, managerial challenges and required competencies are more under the microscope as a result of the rapidly shifting dynamics of the management and leadership environments across all sectors of the global economy coupled with profound diversity and complexity in the context of the Fourth Industrial Revolution (Manyika, 2017).

This has framed the problematics of changing skills and competencies for modern managers and leaders. What skills do they really need in this fast-changing business environment to keep abreast of the challenges they face?

OBJECTIVES
The primary objective of this article is to develop a theoretical model to measure skills for managerial and leadership competence.

The following secondary objectives address the primary objective:
- Perform a theoretical study on existing model(s) to measure managerial competence;

- Identify the skills required for managerial and leadership competence;
- Identify the criteria required to measure each managerial or leadership skill from the literature study; and to
- Compile a questionnaire to measure each of the skills for managerial competence.

A SELECTED THEORETICAL MODEL TO MEASURE THE SKILLS FOR MANAGERIAL AND LEADERSHIP COMPETENCE

The theory builds on two existing studies performed by Thekiso (2011) and Shaikh (2013) who attempted to address managerial and leadership competence challenges at business schools. These authors developed skills models which are used here as a point of departure.

Overview

The selected model represents the results of a study to measure the skills for the managerial and leadership competence of MBA managers educated by a private business school in South Africa at their KwaZulu-Natal and Gauteng campuses. The original model envisaged by Thekiso (2011) identified seven identified skills identified from a detailed literature review on managerial competence. After the theoretical construction of the model, Thekiso (2011) proceeded to empirically test his hypothesised theoretical model by gathering data from a sample of 395 part-time Master of Business Administration (MBA) students from three business school campuses of the North-West University (Mafikeng, Potchefstroom and Vanderbijlpark).

The results indicated marginal success because the majority of the managerial skills were either borderline reliable or unreliable. Only two skills were reliable with a Cronbach Alpha coefficient exceeding 0.70 (excellent); three skills exceeded 0.57 (minimum reliability level for the study) but had Alpha coefficients below the desired 0.70, while two skills were unreliable (falling below the 0.57 lower margin of reliability) (Field, 2009:668). The two unreliable skills (*Leading skills* and *Organising skills*) are, therefore, less likely to represent themselves in repetitive studies of a similar nature; this signifies a warning in the possible future applications of the model to measure managerial competence. In addition to the low reliability coefficients, a number of measuring criteria also had to be discarded due to low

or dual-loading characteristics. The unsatisfactory results forced Thekiso (2011:174) to conclude that his model has failed.

Then in 2013, the model initially developed by Thekiso, was re-evaluated by Shaikh (2013) to determine if the strong theory of Thekiso does have promise and if the model can be amended and operationalised. Success would mean that the model (or parts of it) could be useful in another business school educated manager sample to measure their managerial competence. If Thekiso's existing model, or parts of it, could be validated it could be operationalised as a model to measure managerial competence. Shaikh (2013) then applied Thekiso's model to another sample of the business school educated managers. This time the population was geographically located in KwaZulu-Natal and Gauteng provinces of South Africa.

Factors measuring managerial and leadership competence

The results obtained by Shaikh (2013) identified two factors explaining 37.83% of the variance. These factors were identified as *Factor 1 (Managerial Skills)* which explains 31.73% of the total variance. It also consisted of the majority of measuring criteria. *Factor 2 (Ethical and External Influences)* explained only 6.09% of the variance. This meant that Factor 1 was of much greater significance. However, closer scrutiny revealed that the first factor is generalised and that it may consist of sub-factors. In further analysis, Shaikh succeeded to identify a further seven sub-factors within Factor 1. The Shaikh model is shown in Figure 1.

Improving on Thekiso's results, Shaikh succeeded in obtaining satisfactory reliability of his factors (see Figure 1). Only the sub-factor 7 showed a low reliability with its coefficient below the secondary margin of 0.57 (Cortina, 1993:101; Field, 2009). It is also evident that the more important factors (according to the variance explained), namely Factor 1 and its two main sub-factors (1 and 2) have high reliability coefficients that exceed 0.70 with ease. The other sub-factors and Factor 2 also exceed the 0.57 secondary reliability margins with ease. The model is shown in Figure 1 after which each of the factors is discussed.
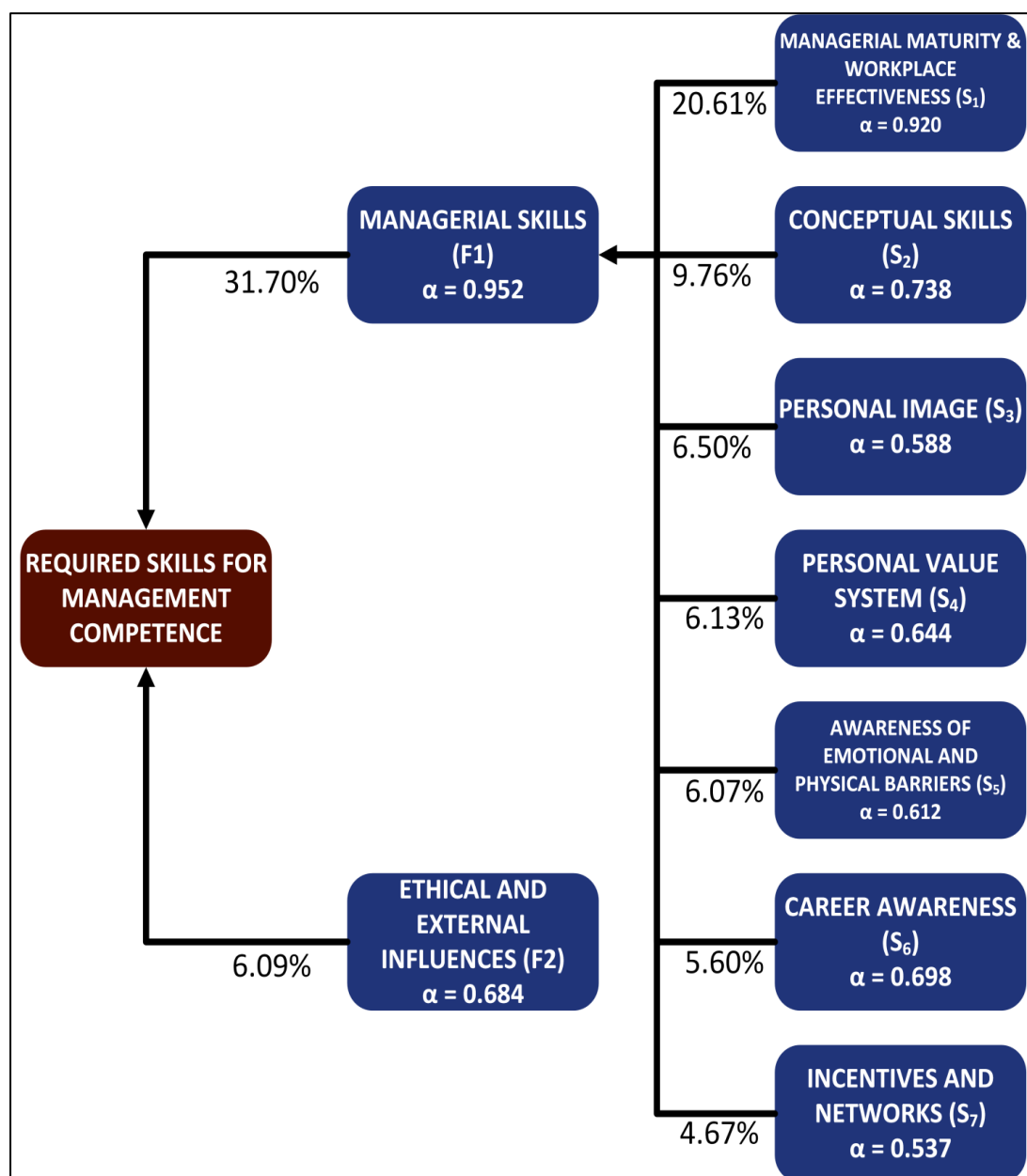
Figure 1:   **A theoretical model to measure skills for managerial competence**

Source: Shaikh (2013)

Figure 1 shows that two factors could be identified, but that Factor 1 consists of seven sub-factors. These two factors and seven sub-factors are discussed below.

Factor 1:   *Skills for managerial competence*

Sanchez and Heene (2004) state that competency-based theory is a relatively new way of thought about how organisations can improve and sustain high performance levels over time. This theory still holds as performance tool (Makulova et al., 2015:183; Takahashi et

al., 2017). Established in the 1990s, competency-based strategic management theory explains how organisations can develop a sustainable competitive advantage in a systematic and structured way. The competency-based theory incorporates economic, organisational and behavioural concerns in a framework that is dynamic, systemic, cognitive and holistic. In the context of the present study, the term *competence* is viewed as the blend of knowledge, skills, abilities and behaviours needed to carry out tasks successfully. Managerial competence depends on both skills and knowledge based on understanding. Competence includes the capacity to transfer knowledge and skills to new tasks and situations. Here the *Competing Values Framework* (a framework of managerial competence developed by Evert, Lindquist and Macy (2014:182)) provides a foundation for developing managerial competencies and to guide managers to become "master managers". Here Kinghorn et al. (2015) expand the master manager concept, and state that the following eight roles are critical to becoming a master manager; that is to be a mentor, facilitator, monitor, coordinator, director, producer, broker and an innovator.

On the other hand, Shaikh (2013) identified a subset of seven managerial skills that form the basis of his managerial competence model. These skills are discussed next.

Sub-factor 1: Managerial maturity and workplace effectiveness
Given the complexity that accompanies managerial roles generally, managers often find themselves in an invidious position where they may be offended personally, where blame may be placed on them for matters outside of their sphere of influence, or they may become parochial and avoid taking uncomfortable actions. In such instances, the manager gets into the intricacies of being a mature leader as well as being able to overcome these obstacles in the workplace (Plachy, 2015). Here interviews by Thomas et al. (2014) with numerous founders of large United States companies offer an insight into their modest expectations at the time of company start-up and their genuine surprise at the size their firms did ultimately grow to. These interviews commonly identified that different managerial skills are needed to maintain success as the company grows, and that company growth presents a wide range of challenges for its leaders. The point at which growth will outstrip management ability is not easily predicted because the threshold is different for each leader and each management team. The leader must be able to identify when company growth is outpacing their managerial maturity. Changing existing management practices is

extremely difficult for some leaders. A delegation of authority for a leader has two key benefits: first, it builds the company's managerial maturity, and second, it lessens the workload that is placed on the leader.

Sub-factor 2: Conceptual skills

In his seminal study in 1955, Sydney Fine postulated the skills managers used and included the concept of conceptual skills (Fine & Getake, 2014:147). Based on this work, research by Katz (1974:101) and the later works by Fine and Getake (2014:147), and Wiley-Cordone (2016) attempted to define conceptual skills in management modernly as:

"A skill that allows a manager to visualize the entire organisation and work with ideas and the relationships between abstract concepts."

Katz's (1974:102) seminal study on the skills approach to leadership suggested that leadership is based on technical, human and conceptual skills. Additionally, Katz (1974:100) also points out those top-level managers rely on and use conceptual skills strategic decision-making while lower level managers do so to supervise day-to-day operations. However, conceptual skills should be backed up by technical- and human skills to operationalise ideas and concepts in the workplace. Leaders with high levels of conceptual skills are good at thinking through the ideas that form an organisation and its vision for the future, expressing these ideas in verbal and written forms and understanding and expressing the economic principles underlying their organisation's effectiveness. These leaders are comfortable asking "what if" or other managerial based hypothetical questions and to work with abstract ideas. Here Northouse (2016) adds that conceptual skills allow leaders to give meaning to abstract ideas and to make sense of abstract ideas for their superiors, peers and subordinates.

In contrast to Katz (1974:101) and Wiley-Cordone (2016), Northouse (2016) states that conceptual skills are very important for top managers, less important for middle managers, and least important for supervisory managers. However, Yukl (2006) tends to disagree with Northouse's view (2016) and leans more towards the views held by Wiley-Cordone (2016) in this regard; that is, that it is important to develop and demonstrate this skill at all levels of management. Even though conceptual skills are differently applied by the different levels of

management, all need conceptual skills. Also, as managers get promoted to higher levels, early development of conceptual skills makes it easier for the manager to now operate on the higher level after the promotion.

The modern economy also requires conceptual skills. Here a study by Abbatiello et al. (2017) points out that digital leadership is most relevant and that managers do need conceptual skills in the modern digitalised economy to make astute management decisions. These authors, in a collaborative study with the Business School at the Massachusetts Institute of Technology, concluded that leadership capabilities needed to succeed in a digital world include conceptualising possibilities in a virtual world, handling ever-increasing cognitive complexity, thinking divergently about new ways of doing things and making decisions quickly without all of the information.

Sub-factor 3: Personal image

The modern marketplace and competitive environment are strongly social media-based and increasingly driven by the value-proposition offered by organisations to its customers (Halzack, 2016). To a large extent, competitive disruption has shifted from the technological sphere to social and personal spheres of peoples' lives. Driven by a pervasive social media phenomenon, the personal image of leaders is often referred to as having a personal brand (Llopis, 2013). This personal brand is also transferred to the managerial position; hence the personal life and the employment become inter-connected on social media. (Shaikh, Karodia & Soni, 2017:20).

Sub-factor 4: Personal value systems

Katulwa (2015:197) notes that "Leaders carry out this process by applying their leadership attributes such as beliefs, values, ethics, character, knowledge and skills". Though attributes are more difficult to develop than leadership behaviours (Tubbs & Schulz, 2006:497), management and leadership development efforts should focus on building a solid character as the foundation stone upon which to develop leadership behaviours. Some ethical lapses and corporate scandals are typical expressions of character flaws in the lives of senior business leaders (Katulwa, 2016). Here Volkswagen's Dieselgate, Sepp Blatter, the disgraced former head of soccer's international governing body, and Martin

Shkreli the CEO of the drug company Turing who increased the price of an HIV drug by 5,000%, serve as examples where personal values failed executives (Mathews & Gandall, 2015). In support Dillon and Bourke (2016) state that inclusive leaders should also align their personal values towards inclusion by treating all team members with fairness and respect, understanding the uniqueness of each team member, taking action to ensure each team member feels connected to the group/organisation and proactively adapt their work practices to meet the needs of others.

Sub-factor 5: Awareness of emotional and physical barriers

This sub-factor deals with managerial barriers, more so the emotional and physical barriers managers' experience. Scrutiny of the literature provides very limited support for this factor, especially the model deals with managerial competencies and not with managerial barriers. Consultation of the original documentation where the model was developed, however, revealed that although the sub-factor seems not to befit the model, Shaikh has reported on it for completeness sake. The specific factor showed little promise hence it is omitted from the model. The individual criteria which loaded onto the sub-factor were retained though because they might add value (or not) in further model evaluation and development. If not, these criteria were deleted from the list.

Sub-factor 6: Career awareness

Carr (2008) seminally questioned the advancements in the digital age and its effect on human intelligence and detailed the fundamental shift in learning, reading and memorisation that has taken place in recent years as a result of the digital proliferation. Additionally, he pointed out that "there are simply not enough highly specialised technical workers available for existing vacancies and needs". Nanterme (2016), in support, recognised this gap and indicated that the digital revolution is the main reason that more than 50% of the Fortune 500 companies have disappeared since the year 2000. This serves a stern warning to career competence and career recency in a changing environment. Constant training, development and retraining are required to remain relevant and competitive in a career. Hence lifelong learning and a self-motivated pursuit of knowledge are defining features of the new knowledge economy. Changes brought by the Fourth Industrial Revolution are widening the global talent shortage; a gap that will only worsen as advances in technology further increase existing talent mismatches. Evidence

from Accenture's research (2016) shows those technical jobs (at all the skills levels) require more than pure technical skills.

Sub-factor 7: Incentives and networks

Giles (2016) based on feedback from influential leaders worldwide, state that the most important leadership competency is to foster a strong sense of connection and belongingness. Her study also indicates that this sense of connection and belongingness is achieved by leaders who communicate often and openly, and create a team experience when achieving success or experience failure. Historical leader behaviour, such as "heroship", is outdated. Here research by Abatiello et al. (2017) highlights that companies such as Google, Lyft, WL Gore, Mastercard, and Atlassian focus on team leadership and they recruit leaders who can work together as a team, complement one another, and function as a team. Abatiello et al. (2017) go on to argue that when older business models are no longer working, leaders need new competencies to redesign their organisations to be more dynamic, team-centric, and connected.

Factor 2:   Ethical and external influences

Ethical responsibility is an increasingly key factor in determining a leader's success. Whetten and Cameron (2015:37) state that today's public has high standards for the behaviours of companies. Laws and lawsuits more frequently follow violations of formalised ethical standards, and competitors are quick to market how they are more ethical than other companies. Also, the behaviour of managers is under greater scrutiny than ever before. Because the public has easier access to information, misdeeds can almost instantly become widely known, damaging an organisation's reputation and a manager's career.

A survey conducted by Sulaiman and Mohezar (2009) on the students' 'perception of the quality of MBA programmes' established the need for MBA programmes to consider ways of improving ethical awareness among MBA graduates. Leaders in businesses and other organisations are daily faced with ethical issues such as conflict of interest, communication, lack of fairness and equity in rendering services, opportunities to offer or accept bribery and kickbacks among many others. Leaders, therefore, need to be acquainted with the basic knowledge of ethical language and implications of their choices before they are able to deal with temptations that come with leadership positions that they

hold. Here Bisschoff (2017) performs longitudinal research spanning over nine countries and six continents to measure and compare ethical attitudes of MBA students.

According to research by Giles (2016), leaders who demonstrate strong ethics and provide a sense of safety are among the most highly rated attributes of the ten most important attributes of 195 leaders from 30 global organisations. Giles summarises by stating that leaders with high ethical standards convey a commitment to fairness, and instilling confidence that both they and their employees will honour the rules of the game. In a safe environment, the employees can relax, invoking the brain's higher capacity for social engagement, innovation, creativity, and ambition.

Shortcomings of the model
The abovementioned model holds three significant shortcomings, namely that of recency, variance explained and an unsupported factor from theories studied in the literature.

1. The model by Shaikh (2013) was developed from the theoretical framework by Thekiso (2011). This means that the fast-developing technological environment and the Fourth Industrial Revolution are not fully incorporated in the model. Also, human aspects such as constant career development, burnout and stress, and emotional challenges in the work environment are not part of the original model variables. The model thus has to "modernise" to befit the new economic and technological environment managers operate in.

2. The model results show a relatively low variance explained. The analysis identified two main factors explaining a cumulative variance of 37.83% (thus not achieving the desired 60% variance explained). This means that the model does consider the majority of the managerial competencies and that there are other managerial skills that can be gleaned from literature to improve the managerial competencies. In practice, this means that it is required to identify relevant managerial competencies further to add to the current model.

3. One variable identified by the Shaikh model (*Awareness of emotional and physical barriers*) seems to be population specific as there is no supporting evidence from any of the theories studied in the literature. Lack of evidence from an extensive literature review suggests that this variable is not general and has therefore been discarded from the model.

Adapted literature constructs of the model

The model developed in 2013 by Shaikh has a broad literature base. These supporting sources are listed in Table 1.

Table 1:   Constructs from the original model

Constructs	Sources of Support
Managerial maturity and workplace effectiveness	Plachy (2015); Thomas et al. (2014)
Conceptual skills	Katz (1974); Yukl (2006); Northouse (2016); Wiley-Cordone (2016); Abatiello et al. (2017)
Personal image	Llopis (2013); Halzack (2016); Shaikh et al. (2017)
Personal value systems	Hernez-Broome & Hughes (2004); Tubbs & Schulz (2006); Satija (2009); Berger et al. (2012); Katulwa (2015); Katulwa (2016); Dillon and Bourke (2016)
Career awareness	Carr (2008); Hogan & Hogan (2001); Nanterme (2016); Accenture (2016)
Incentives and Networks	Giles (2016); Abatiello et al. (2017)
Ethical and External Influences	Sulaiman & Mohezar (2006; 2009); Whetten & Cameron (2015:37); Giles (2016); Bisschoff (2017)

Given the successes, the shortcomings and strong literature base of the current model, it seems worthwhile to attempt improvement of the model and expanding it to increase the variance explained by the managerial competencies. To accomplish this, the model needs to expand the literature base, add more skills and also add more measuring criteria to peruse and analyse.

EXPANDING THE MODEL

The literature study reveals that the following managerial and leadership competencies should be considered in addition to those already identified by both Shaikh (2013) and Thekiso (2011).

Emotional Intelligence

The most effective leaders are all alike in one crucial way: they all have a high degree of what has come to be known as emotional intelligence. This view does not purport to suggest that IQ and technical skills are irrelevant. While these skills do matter they are the entry-level requirements for executive positions (Cherniss et al., 1998 cited in Ovans 2015). Emotional intelligence, as a theory of performance, reflects how an individual's potential to master the skills of *self-awareness, self-management, social awareness*, and *relationship management* translates into on-the-job success.

Goleman's pioneering research, along with other recent studies (Abbatiello et al., 2017; Ovans, 2015; Stein, 2017), clearly shows that emotional intelligence is not a new skill that is *'sine qua non'* for leadership, but that it is needed now more than ever before. Without it, a person can have superior training, an incisive, analytical mind, and an endless supply of smart ideas, but this would not ensure great leadership (Cherniss et al., 1998). In the context of the modern digital economy, Abbatiello et al. (2017) argue that leadership is regarded as critical in transforming an organisation "doing digital things" to one that is "becoming" digital. For both the organisation and its leaders, this involves three different types of transformations:

- Cognitive transformation: Leaders need to *think* differently;
- Behavioural transformation: Leaders need to *act* differently; and
- Emotional transformation: Leaders need to *react* differently.

According to Stein (2017), leadership research on emotional competencies is still in transition. This means that while many of the 'hierarchical and authoritarian' styles of leadership have become obsolete, and 'transactional' management styles have proven unproductive, new studies have encouraged the embrace of 'transformative styles' in which organisational leaders inspire their teams to achieve a collective purpose. Stein (2017) goes on to suggest that more leaders need to be equipped with the skills that combine interpersonal abilities, including empathy and trust, with the capacity to model creative problem solving when faced with tough situations. The managerial skill referred to as *emotional competence* has been identified by Goleman (and other EI theorists) as part of the skills set high-performing managers possess; a skill that is high in demand in the Fourth Industrial Revolution.

Leading change

The customary, rather rigid corporate structures do not allow for agile change between the various leadership roles. Hoffmann (2016:12) indicates in this regard that, in the context of the Fourth Industrial Revolution, the multiple hierarchical levels in the conventional organisational model will become obsolete and eventually disappear. The typical silo-mentality associated with the hierarchical organisational design will fade, and this should unlock innovation in organisations that will, in addition to exploiting the current business environment, also allow leaders to incorporate experimentation of new ideas, innovate and to achieve a balance to secure long-term success. Here Truxillo, Bauer and Erdogan (2016:12) confirm that the organisation has to learn continuously without any boundaries and adjusted organisational structures if necessary.

A defining feature of the Fourth Industrial Revolution is the digital change that comes along with it; digitalisation requires constant strategic review and mission adaptation (Anderson, 2017). Here Eulitz (2016:13) adds that a leading proponent of the digital change phenomenon is that digitisation has to be anchored deeply in the organisation as an essential success factor for business growth. In this regard, companies are hiring Chief Digital Officers who lead interdisciplinary teams with special skills in the field of digitisation, for example, e-commerce, and function as a start-up within an existing company (Eulitz, 2016:13).

Sign (2016:14) highlights that, in contrast to a conventional executive, contemporary leaders are characterised by their openness to embrace change and innovation: He argues that although the traditional meaning of leadership should not change much, the concept of innovation management will. The question of managerial adaptability, ability to change and the recognition of opportunities and threats in a digitised fast-moving business environment surface as future managerial and leadership challenges.

Cultural intelligence

In the 21st century, cultural sensitivity and competence have been widely recognised as a critical factor to the success of the leadership process and organisational transformation (Sulaiman & Mohezar, 2006). Increased globalisation has amplified cultural diversity in the workplace and has made the ability to lead across cultures a critical managerial and

leadership competence for effective managers. With increased advances in communication and technological convergence, the degree of cultural diversity is bound to increase, and that will continue to exert pressure upon organisational leaders to enhance their capacity to connect in nontechnical ways (Dunwood & Peters, 2016). Hitt, Black and Porter (2005:115) define culture as "A learnt set of assumptions, values, and behaviours that have been accepted as successful enough to be passed to newcomers". The relevance of culture to business leadership lies in its impact on behaviour. Consequently, business leaders with cultural understanding and sensitivity are better placed to leverage culture and use it to help accomplish organisational goals. The business leader of the 21st century is more likely to work with a more culturally diverse workforce than their predecessors of the 20th century. Walker et al. (2003:23) describe the knowledge-based economy as the era of global business where a "different level of awareness, competence and skill is required to navigate the relativity and complexity of the multicultural global work and marketplace". Further, they identify five interrelated aspects of cultural competence that they argue could be developed through continuous learning and development. These learnable interrelated aspects of cultural competence include: open attitude, self-awareness, other awareness, cultural knowledge and, cross-cultural skills (Walker et al., 2003; Fong et al., 2016); leadership and managerial competencies required in a fast-changing business environment.

Teambuilding

At the start of the century, MacMillan (2001) already depicted the 21st century business as a team-sport environment where new rules apply, and world-class competition is the order of the day. To succeed in this environment, businesses need to function like high-performance teams characterised by clear, common purpose, crystal-clear roles, accepted leadership, effective team processes, solid relationships and, excellent communication. Campbell (2006) later further explored the concept of teams and identified three critical reasons for developing teambuilding competency among business leaders in the knowledge economy:

- Team performance is a major determinant of the overall organisational performance;
- Business leaders of the 21st century are going to spend a greater portion of their time working in teams; and

- Business leaders wishing to maximise their personal potential should develop their team leadership skills on a smaller scale before they can advance to leading multiple teams.

Here Maitland and Anderson-Terry (2017) confirm the importance of teams in business to cope with the disruptive changes the Fourth Industrial Revolution brings about. This is specifically relevant to South African managers and leaders because there is an insufficient understanding of these disruptive changes (68%) and that 44% of the workforce strategy is not aligned to innovation strategy (Hattingh, 2016). Hattingh also points out that virtual teams and their management is also a required competence in the postmodern business environment.

Strategic leadership

Strategic leadership has been identified as a source of competitive advantage (Day et al., 2009:14). Hitt, Ireland and Hoskisson (2012:63) defined strategic leaders regarding the manager's "ability to anticipate, envision, maintain flexibility, think strategically, and work with others to initiate changes that will create a viable future for the organisation". Looked at from that perspective, strategic leadership bears within it the potential to create a competitive advantage for an organisation to the extent to which it is hard to be imitated by competitors. To function effectively in an interdependent, increasingly complex, and dynamic knowledge-based economy of the 21st century, managers and leaders need to enhance strategic leadership skills more than ever before (Hattingh, 2017). A point stressed by Anderson (2017) who indicates that the continued acceleration of innovation and the velocity of disruption demand that management strategy is continuously adjusted to remain competitive. Here Swartz and Potgieter (2017) point out that accelerated change will increase stress; hence managers should be skilled in dealing with stress in the modern economy.

Conflict management

Conflict may be described as a struggle between at least two parties arising from incompatible goals, competition for scarce resources, different perception of given a situation or, perceived interference from the other party in achieving their goals (Campbell, 2006). In the knowledge economy of the 21st century, a conflict are a prominent feature in the workplace and require people skills, self-management skills, and also leading skills

(Anon., 2017). Reese (2016), however, states that the manager or leader should be conscious of their ability, or lack thereof, to manage conflict. He cites Maslow's views in this regard who categorised managers' or leaders' conflict competencies as:

- *Unconscious incompetence*: Here managers who are incompetent in one (or more) of the conflict management skills, don't know that they are incompetent; they blame others for their incompetence.
- *Conscious Incompetence*: These managers are incompetent in a (or more) conflict management skill(s), and they know it. They are aware that they need to learn these skills.
- *Conscious Competence*: These managers have learned specific conflict management skill(s) which they apply skillfully consciously.
- *Unconscious Competence: These managers have conflict resolving skills, and they* apply the skill consistently but "as part of their management skills", not as a conflict resolution skill.

Here Reese (2016) points out that business leaders and managers should establish good communication links to be good at managing conflict.

Communication skills

Leadership is about influencing others to achieve agreed desired goals, and this is done through communication. Communication skills competence has been (Certo, 2000; Conrad & Newberry, 2011; Du Babcock, 2006) and still is widely regarded as a critical determinant of organisational success (Reese, 2016; Anon., 2017). Wiemann (1977) described communication skills regarding the ability to choose between different available communicative behaviours, in a way that successfully fulfils the users' interpersonal goals. Several studies have underscored the need for business education to include development of communication skills in the curriculum in order to address the apparent gap between the graduates' skills level and what is desired by the business industry (Lanier et al., 1997; Tanyel, Mitchell & McAlum, 1999; Roebuck, 2001; Kamal, 2015). Here Kamal (2015) points out that nine communication skills are required by managers, namely active listening skills, writing skills, verbal skills, interpersonal communication skills, teamwork skills, presentation skills, selling skills, negotiation skills and networking skills. Considering

that a leader's performance is closely tied to his/her communication competence (Frederickson, 2006) and that most leaders will spend close to 40% of their time communicating with their constituents (Simpson, 2006), communication is a core competency managers should master. Giles (2016) also lists communication as a key skill managers should possess. Generally, management researchers agree that both oral and written communication skills are key in communication competence (Reese, 2016; Giles, 2016; Anon., 2017).

Global leadership mindset

Rogers and Bloski (2010:19) describe a global mindset as:

> *The capacity to engage in a boundaryless and synthesizing cognitive process*
> *that identifies opportunity and innovation in complexity.*

Two modern definitions of the global mindset in business are offered by IGIGlobal (2017) as:

> *A meta-capability that permits an individual to function in the new and unknown situation*
> *and to integrate this new understanding with other existing skills and knowledge.*

and

> *Managerial openness to and awareness of diversity across cultures and markets with an*
> *ability to see and seize the global opportunities, to adopt sustainable and ethical good*
> *managerial practices wherever they come from, cooperating globally to the benefit of all*
> *stakeholders accepting the philosophy of integrity in their actions.*

IGIGlobal (2017)

Encompassed within the global mindset is the ability to see beyond national culture, organisational boundaries, corporate gain and functional responsibilities to the society as a whole. The global leadership mindset is essential for success in the 21st century because it enables leaders to embrace paradox and complexity which are indispensable skills in a dynamic first changing environment (Rogers & Blonski, 2010:2). Studies have recommended a multi-dimensional approach where the global mindset allows managers to expand beyond their limits of their existing behaviour and incorporate ethnocentric thinking,

diversity and differences in their management activities to function effectively on a global platform (Cohen, 2010; IGIGlobal, 2017).

EXPANDED THEORETICAL MODEL TO MEASURE MANAGERIAL COMPETENCE

The managerial competencies identified by the original models and the extended literature study are combined in a new theoretical model to measure managerial competence. The relevant new competencies and their supporting theory are summarised in Table 2. The table includes the original competencies by Thekiso (as adopted and adapted by Shaikh) and also the newly added competencies from the literature study. However, overlapping competencies and skills resulted that, from a possible sixteen competencies, a total of eleven core managerial and leadership competencies were identified. These competencies appear in the table below. The relevant measuring criteria based on the theory to measure each of the competencies also appear in this table.

Table 2 follows on next page

Table 2:   Additional constructs supported by the literature

Global Leadership Competence	Measuring criteria	Origin
Leading change	1. As a leader, I need to be prepared to help my organisation to keep pace with change 2. I believe that there is a relatively high level of failure in strategic change efforts in organisations 3. As a leader, I need to drive the topic of change, be a change agent myself and promote diversity 4. MBA programmes must include a course on managing strategic change in the core curriculum 5. I believe that most managers do not embrace the reality of regular change in their organisations	Hoffmann (2016); Truxillo et al. (2016); Eulitz (2016); Sinh (2016); Anderson (2017)
Cultural intelligence	6. I believe that cultural intelligence is a critical success factor of the leadership process and organisational transformation 7. Leaders with cultural understanding and sensitivity are better placed to leverage culture and use it to help accomplish organisational goals 8. Increased advances in ICT, the degree of cultural diversity is bound to increase pressure on organisational leaders	Chin and Gaynier (2006); Sulaiman and Mohezar (2006); Walker et al. (2003); Hitt et al. (2005); Hitt et al. (2012); Fong (2016)
Team building	9. Team performance is a major determinant of the overall organisational performance 10. Business leaders of the 21st century are going to spend a greater portion of their time working in teams 11. I believe that leaders who are collaborative are most successful in their leadership efforts 12. Collaborative leaders generate goodwill in the team, which in turn enhances team performance	MacMillan (2001); Campbell (2006); Hattingh (2016); Reese (2016); Maitland & Anderson-Terry (2017)

Table 2:   **Additional constructs supported by the literature (continued)**

Strategic leadership	13. Strategic leadership focuses less on day-to-day events and more on underlying trends and patterns 14. Strategic leadership has the potential to create a competitive advantage for an organisation which is hard for competitors to imitate 15. Strategic leaders envision the future and inspire others to work towards creating a viable future for the organisation 16. Strategic leadership is directly connected to organisational renewal and strategic innovation	Day (2000); Oritz (2004); Hitt et al. (2012); Anderson (2017); Hattingh (2017)
Conflict management	17. I must manage the gaps and tensions that emerge due to the diversity of my team members 18. A leader's conflict management ability is key to the current business environment of diversity, complexity and continuous change. 19. If I manage conflict poorly, business performance will suffer	Campbell (2006); Kamal (2015); Reese (2016); Anon. (2017)
Communication skills	20. A leader's performance is closely tied to his/ her communication competence 21. MBA degrees and business education programmes must include communication skills to improve graduates' impact in the workplace. 22. Leaders spend a substantial part of their time communicating with their constituents. 23. Influencing others is central to leadership, and this is achieved through effective communication. 24. Communication will increasingly become networked and matrix-based across multidisciplinary teams	Dilenscneider (1992); Wiemann (1997); Lannier, Tanner, Zhu and Heady (1997); Tanyel et al. (1999); Fredrickson (2006); Du-Babcock (2006); Certo (2000); Simpson (2006); Conrad and Newbury (2011); Giles (2016); Reese (2016); Anon. (2017)
Global leadership mindset	25. I understand the global mindset is the ability to see beyond national culture, organisational boundaries, and local business opportunities. 26. The global leadership mindset is essential for success in the 21st century because it enables leaders to embrace paradox and complexity	Rogers and Blonski (2010); Cohen (2010); IGIGlobal (2017)

Table 2:   Additional constructs supported by the literature (continued)

Emotional Intelligence	27. I understand self-awareness to be a key part of emotional intelligence 28. Emotional intelligence can result in an outstanding performance at work. An emotionally intelligent leader is aware of relationship management as well as task orientation 29. An emotionally intelligent leader is aware of relationship management as well as task orientation. 30. If I am emotionally intelligent, I understand the impact that my emotions and behaviour would have on others around me.	Cherniss et al. (1998); Ovans (2015); Boyatzis, Goleman and Rhee (2000); Abatiello et al., (2017); Stein (2017)
Ethical and External influences	31. The public has higher expectations these days for the ethical behaviour of companies 32. MBA graduates are required to reflect greater ethical awareness – especially since the 2008 crisis 33. Leaders in business are regularly faced with ethical issues such as bribery, corruption, kickbacks for contracts among others 34. Leaders must have a basic knowledge of ethical language and behaviours in their daily interactions	Sulaiman and Mohezar (2006; 2009); Whetten & Cameron (2015:37); Giles (2016); Bisschoff (2017)
Career awareness	35. I am aware that employees are required to have technical skills in the digital economy 36. Lifelong learning is an essential feature of career development in the knowledge economy 37. Career planning is part of my self-development – rather than my employer's responsibility 38. I am aware that even technical jobs require soft skills such as creativity, collaboration and business savvy	Carr (2008); Hogan & Hogan (2001); Nanterme (2016); Accenture (2016)
Personal value system	39. I apply my own beliefs, values, ethics, knowledge and skills in my leadership style 40. Leadership behaviours are to be built on character as a foundation 41. Ethical lapses in business are partly a result of character flaws of leaders 42. The demonstration of solid character is going to be an indispensable quality of 21st century leaders	Hernez-Broome & Hughes (2004); Tubbs & Schulz (2006); Satija (2009); Berger et al. (2012); Katulwa (2015); Katulwa (2016); Dillon and Bourke (2016)

Table 2 is a summary table of the literature study on the managerial and leadership competencies. The table shows how each competency can be measured and where the specific measuring criteria originated from in the literature. Also, some criteria were also drafted from lines of thought of multiple studies, and could not be specifically attributed to a specific study; these criteria were compiled and listed based on the general literature. This table serves as the empirical structure of the measuring instrument, a questionnaire, that will be used to measure managerial and leadership competence among South African business leaders. The adapted model to measure managerial and leadership competence appears in Figure 2.

Figure 2:   The adapted model to measure managerial and leadership competence

The identified eleven managerial competencies are shown in the figure. These competencies represent the theoretical model, and further research needs to be done to substantiate these competencies as valid measures of managerial competence.

SUMMARY

This article started with an existing theoretical model to measure managerial and leadership competencies of business school educated managers. The model presented by Shaikh (2013) was an adapted theoretical approach based on a conceptual model originally presented by Thekiso (2011).

While the Shaikh model reflected a fundamentally different factor and sub-factor structure to the conceptual model by Thekiso (2011), it succeeded in progressing in the right direction by overcoming failures experienced by Thekiso. However, the key shortcoming is the variance explained that falls dismally short of the desired 60%. At the current 37% of the variance explained, it means that 63% of the variance is not explained; this is unsatisfactory. This meant that the model had to be extended and 'modernised' to reflect the latest dynamics and factors of managerial and leadership competencies related to the current dynamic and complex global business environment.

In extending the current model to measure managerial and leadership competence more comprehensively, seven competencies were retained from the existing Shaikh model. One competency was discarded because it showed a lack of supportive evidence for the theory. Also, and based on an extensive literature review, another nine competencies were added from an extensive literature study. These new competencies sought to accommodate the key elements of managerial and leadership skills that were missing from the original theoretical model by Shaikh (2013). Although there are 16 skills in total, the new set of competencies embeds some of the original competencies. This means the model now has eleven managerial competencies to measure, each with its unique set of measuring criteria.

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CHAPTER 4

ARTICLE 3:

Identifying factors to measure managerial and leadership competence of business school educated managers

This article was submitted in October 2017 to the journal *International Review of Marketing and Management.* It is a CHE and Scopus accredited journal. The article is currently under review.

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Abstract

The article explores a model to measure managerial and leadership competence of business school educated managers by seeking to identify the latent variables in the model. Here the research uses exploratory factor analysis to identify latent variables. The article also renders a verdict on the validity of the model as a higher objective of model development. In total 385 questionnaires using a five-point Likert scale were independently administered to business school educated managers; 94% responded. Exploratory factor analysis identified five factors explaining a cumulative variance of 56.5%. These are Leadership skills, Managerial challenges, Emotional intelligence, Personal value system, and Cultural sensitivity. Measuring criteria with low factor loadings or those with high dual-loadings were eliminated in the purification of the measuring criteria. The data have a high reliability coefficient of 0.947 while the constructs also adhered to the validity requirements. The research is of value to managers who aim to improve their managerial and leadership skills after studying advanced management programmes at business schools, employees of such educated managers and also to academia aiming to explore this avenue of managerial and leadership skills development further.

Key terms: Management, leadership, competencies, validity, measurement, model, factors.

JEL Code: M19

INTRODUCTION

The Fourth Industrial Revolution poses a great challenge to managers and leaders to be competent and effective in this new economy where the fast-changing business environment is dominated by major volatility and disruptions (Schwab, 2016). Consequently, organisations have to be highly adaptive to remain competitive. Smit, Botha and Vrba (2016) capture it succinctly when they state that these disruptions bring with it not only huge benefits but also the complexities of managing organisations that have to deal with diversity and constant change. This transformation is affected by both external and internal factors which relate to management and leadership (Chirimbu, 2011). Constant strategic refocusing and planning require a successful change in the organisation and requires the active participation of competent managers or leaders (Anderson, 2017).

Within this context, the questions of competent management or leadership are now, more than ever, important areas of focus for the survival and growth of any organisation. Managers are also expected to lead using global and even virtual teams in the workplace (Maitland & Anderson-Terry, 2017), and have to adapt to cross-cultural differences and attempt to cope with important differences in interpersonal communication styles, preferred approaches to organisational control and authority relations, and work-related knowledge and problem-solving approaches (Cramton & Hinds, 2014; Fong et al., 2016, Cornellissen, 2017). In the midst of these complex dynamics, vexing management and leadership questions remain, for example, what are the implications of these technological changes for managers or leaders of companies? What are the characteristics of the manager who has to navigate the organisation through the era of mass disruptions? Is the current managerial or leadership style still appropriate if organisations are changing relentlessly and also profoundly? Here Eulitz (2016) provides candid advice by pointing out that, primarily, a change of thinking is required. Traditional thinking such as the linear organisation structure and current leadership styles are adapted to address new challenges and could even become obsolete. This poses more challenges to managers and leaders, and it is clear that special attention needs to be given to the skills and competencies of managers and leaders to equip them to embrace the disruptive changes of the Fourth Industrial Revolution. This will enable them also to lead, manage and encourage their employees to do the same (Staffen & Schoenwald, 2016).

PROBLEM STATEMENT

Reflecting the changes in the current global business environment, new skills and competencies are needed by the future manager or leader. Here Petrie (2014) notes that while the nature of the challenges that managers or leaders face is rapidly changing, the methods that are being used to develop the challenges, however, provides stability because they remain the same. Modern thinking methodology is required to face these challenges (Eulitz, 2016), and new thinking paradigms are eminent to negotiate the challenges posed by the new economy successfully. In this case, Smith (2014) reports that the majority of top managers he surveyed, indicated that their organisations are not equipped to cope with this complexity. As a result, organisations are forced to construct changes to survive in the fast-changing global economy with management and leadership that are not equipped to be the change agents. They require more (and new) managerial and leadership competencies to successfully guide the organisation successfully in the disruptive and changing business environment. Also, these managers and leaders do possess skills and competencies and application in the new global economy changes. A typical example is that although a manager might have excellent team-working skills, he or she is now forced to manage such a team as a culturally diverse and virtual team; this requires new team management competencies. However, the problem facing managers, leaders and organisations pertains to what skills and competencies are required to negotiate the new global economy best, and if identified, can these skills be measured among the managers and leaders? This question underpins the primary problem addressed in this article.

RESEARCH OBJECTIVES

The primary objective of this article is to empirically evaluate the theoretical model to measure managerial and leadership competence of business school educated managers.

The primary objective is achieved by the following secondary objectives:
- Identify the important measuring criteria postulated in the theoretical model;
- Identify the latent variables to measure competence;
- Ensure reliability of the latent variables identified;

- Empirically validate the model to measure management and leadership competencies; and to
- Present an empirical model to measure management and leadership competencies.

LITERATURE REVIEW

The literature review consists of three key elements: First, the use of alumni or university students as the target population for a meaningful research endeavour. Secondly, the appropriate statistics employed to simplify and validate the model, and then thirdly, to confirm the relevance of the latent variables from the literature.

Measuring managerial and leadership skills among alumni or business school populations

Students or alumni of universities have long been a favourite target population for researchers. There are many reasons for that, but primarily these respondents are selected because they (Fullerton & Bisschoff, 2013):

- Have specific knowledge of an institution; hence can provide accurate feedback on the topic that the institution would like feedback on;
- Are easy to target and collect information from; and
- Provide a homogenous group which suits the study design well.

The literature shows that various studies dating back to 1985 support the use of student and/or alumni populations. In summary, the more relevant studies are:

- Exploring differences between business and non-business students on 30 ethical issues; business students showed more concern on three of the five statistically significant differences (McNichols & Zimmerer, 1985).
- A similar analysis in 1993 among the same student groups using 19 ethical scenarios found only two significant differences; business students were more accepting than the non-business students, of marketing and anti-union activities (Fullerton, 1993).
- In a business ethics study, Rapule (2009) compared 2009 final-year executive MBA students to their 2007 alumni counterparts, and Craven (2010) compared the

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executive MBA students to local and international managers at an international agricultural company.

- Brand loyalty and its management successfully used an array of final-year business school educated managers to determine brand loyalty in fast-moving consumer goods in 2010 (Moolla, 2010);
- Naidoo (2011) also used the business school student population successfully in her study to measure employee stress amongst managers.
- In research by Imandin (2015) the study compiled an employee engagement model based on the data collected from the executive MBA students; and
- In a more recent study in South Africa, business school executive MBA students were compared longitudinally by Bisschoff (2017) who documented the acceptability of managerial ethical scenarios.

Although these, and a myriad of other studies, proved that valuable, reliable and valid data could be collected from student populations, the question remains as to why specifically executive Master of Business Administration (MBA) students are such a popular choice in empirical research. In this case Moolla (2010) offers a plausible explanation by stating that:

- The students are in full-time employment and study part-time. This suggests that, as employed consumers, they would have had high exposure to a wide range of brands that suited his brand loyalty study.
- Additionally, their strong educational background and higher income make them better-informed consumers.
- Most executive MBA students consist mainly of middle and top managers with a minimum of three years' work experience.
- This managerial exposure of executive MBA students represents a community that is more likely to analyse their own management and leadership behaviour; this a rich source of business education experience to tap into.
- This target population sets a minimum educational level for entry into the research which is positively connected to understanding research and content validity.
- This means that they can understand the terminology and nomenclature specified in the questionnaire.

- The population represents a segment that is more informed about contemporary business and management practices.

In summary, although the basis of comparison between the studies differs, these studies have all shown that student, alumni and student-alumni combination populations can be successfully employed and targeted. This is even more so in the case with part-time students such as executive MBA students. Based on his research, Peterson (2001) argues that student groups and even students versus non-students' groups can be compared for research purposes. McNichols and Zimmerer (1985), Rapule (2009), Craven (2010), Moolla (2010), Naidoo (2011), Imandin (2015), Bisschoff (2017) all indicated that business-orientated studies are possible and that these studies yield good results. Perhaps the work by Thekiso (2011) and Shaikh (2013) on measuring skills and competencies in management and leadership provides the best proof of the successful use of executive (or part-time) MBA students as valuable sources of information for research purposes.

Based on the above discussion, it is evident that the use of student or alumni samples is appropriate under certain circumstances. This then means that the executive MBA populations are justified as target populations for this study.

Statistics employed

This study employs three sets of statistical techniques.

- Firstly, the data are scrutinised to ensure that it can be used for further analyses. This is done by determining if the data collected by the sample is adequate to do so (thus enough data points have been collected); if the data are reliable and if the data symmetry compound is suitable. Here the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Cronbach's Alpha coefficient and Bartlett's sphericity test statistics are used, respectively.
- Secondly, the data are subjected to exploratory factor analysis to weed out non-contributory measuring criteria. That is changes effected that dual-loads onto more than one factor or criteria have loadings below the cut-off factor loading set in this study; that is 0.40.

- Then the identifying and labelling of the latent variables of measuring managerial and leadership competence.
- Finally, validating the results using some validity measures.

These techniques and their decision criteria are discussed next.

Kaiser-Meyer-Olkin (KMO) measure of sample adequacy

The Kaiser-Meyer-Olkin (KMO) measures if the sample is adequate; this means that there have been sufficient data points used to provide an adequate sample. According to Mediaspace (2007) (in Imandin, Bisschoff and Botha, 2016), "the results displayed are an index to compare the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients." Here Naidoo (2011:19) indicates that the KMO measure of sampling adequacy is interpreted according to its returned value between 0 and 1. Preferably the KMO value should be bigger or equal to 0.7 to be satisfactory, although KMO values between 0.60 and 0.70 are deemed acceptable for further analysis. A KMO value below 0.50 is not an acceptable value. In this study where exploratory factors analysis is pursued, various researchers warned that it would be inappropriate to continue should the KMO be less than 0.50 (Imandin et al., 2016; Du Plessis, 2009:26; Du Plessis, 2010 and Field (2009:645). It is, therefore, important in this study to exercise care and consider the KMO before continuing towards factor analysis.

Bartlett's test of sphericity

Sphericity is a general condition of compound symmetry. However, more understandably, the term sphericity is seminally explained by the example that the sphericity of "the distribution of balls inside a ball bearing determines the quality of the bearing, such as the load it can bear or the speed at which it can turn without failing" (Wadell & Hakon, 1935). Likewise, the sphericity of the data determines how well the data can provide the answers the researcher needs. In multivariate statistical analysis, like exploratory factor analysis, Bartlett's test of sphericity is used as an indicator of the suitability of the data to continue towards this type of analysis (UCLA, 2017a). Bartlett's tests should return a p-value of 0.05 or less to allow the researcher to proceed towards a factor analysis. Bartlett's test is, like the KMO, a test statistic used as a gatekeeper for further analysis.

Reliability

The most popular reliability statistic used is Cronbach's coefficient Alpha (Fink, 1995). Published by the mathematician Cronbach in 1951, the coefficient determines the internal consistency (or mean correlation of items in the questionnaire) which renders a verdict on the reliability (Wuensch, 2009:9). However, an Alpha coefficient is an important indicator that deals with "consistency" or "repeatability" of analysis (UCLA, 2017b). Here Field (2009:677-681) states that when a questionnaire produces similar scores every time it is used under the same conditions, it shows the ability to collect data with a high reliability coefficient. Reliability coefficients are regarded to be satisfactory if they are equal or higher than 0.70 (Field, 2009:666), although Cortina (1993:102) has proved in his research that coefficients of 0.57 and higher are also acceptable. Based on the successful application of Cortina's research by Naidoo (2011), Muthambara (2013), Bisschoff, Lotriet and Kole (2017) and others, the lower limit for a reliability coefficient is thus set at 0.57; the desired reliability coefficient level remains 0.70 and above.

Exploratory factor analysis (EFA)

Costello and Osborne (2005:5) state that factor analysis is used for the identification of groups and to cluster variables. These groups are factors (or latent variables) embedded in the data (UCLA, 2017a). Here Imandin et al. (2016) point out that exploratory factor analysis is used mainly for:

- understanding the structure of a set of variables
- to identify an underlying or latent variable group; and to
- reduce a dataset to a more manageable size while retaining as much of the original meaning thereof as possible.

Factor analysis also allows for specialised application settings. One such important setting is the selection of the method of rotation. In desired repeatable studies, the rotational principle leans towards an orthogonal rotation where the angle between the axes is kept constant. If there is no desire to compare the results in the future to similar studies, an oblique rotation may be used as it could explain a higher variance if the angle between the axes is not fixed. This could yield a better variance explained (Bisschoff, 2017). However,

Field (2009:796) suggests that in exploratory research settings (such as this study) a varimax rotation may be more desirable as it tends to maximise the dispersion of factor loadings within the factors and also the variance explained by the data (Field, 2009:796). This study, therefore, used an orthogonal varimax rotation. Additionally, the analysis also employed, as suggested by Costello and Osborne (2005:3), the maximum likelihood factor extraction method was used because the data were normally distributed. This supports the explanation of a high cumulative variance. In setting the cut-off factor loadings, the objective of developing a model weighed heavily; here, based on the success of similar research, only criteria with factor loadings of 0.40 and higher were retained (Bisschoff & Moolla, 2014; Fields & Bisschoff, 2013a). Regarding the cumulative variance explained, this study aims for 60% to indicate a good fit to the data (Schunn & Wallach, 2012; Field, 2009:672) although 50% is also deemed satisfactory in an exploratory research setting (Costello & Osborne, 2005:7). The number of factors to extract was based on the eigenvalues to be equal or higher than one.

Validity

Imandin et al. (2016) define validity as "the degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure". In agreement, researchers at the California State University (Los Angeles) states that "while reliability is concerned with the accuracy of the actual measuring instrument or procedure, validity is concerned with the study's success at measuring what the researchers set out to measure" (CSU, 2014). In practice, this means that the "degree of validity" determines how truly the study measures what it intended to measure, and thus reports on the truthfulness of the research results (Golafshani, 2003: 601).

Table 1 shows the types of validity applicable to this study and provides the requirements to achieve each one. Table 1 was adopted and then adapted from a similar study by Imandin et al. (2016).

Table 1:   Measures to validate a factor model

VALIDITY MEASURE	EVIDENCE REQUIRED FOR VALIDITY CLAIMS
EXTERNAL VALIDITY Population validity	1. KMO measure of sampling adequacy exceeds 0.70 (Shadish *et al.*, 2002; Field, 2009:658) 2. Significant factor loadings realised (>0.40) (Farrel, 2007:4)
Ecological validity	1. Expert opinion and consultation on methods and appropriateness (Shuttleworth, 2013) 2. Pre-testing of questionnaire (CSU, 2014; Gaskin, 2014:3)
INTERNAL VALIDITY.	1. Rigour of study: Supervised and stepwise checked by experts 2. Alternative explanations assessed via consultation with topic specialists and focus group discussion with selected researchers
CRITERION VALIDITY Content validity	Testing against benchmark tests performed only in literature sources (CSU, 2014; CollegeBoard, 2012).
Predictive validity	Exploratory model did not predict outcomes – to be performed in future research (Shuttleworth, 2013)
CONTENT VALIDITY	Alignment of criteria to subject area achieved by an in-depth theoretical study on previous measurement models in a similar field (Huitt, 1998; Shuttleworth, 2013).
CONSTRUCT VALIDITY Convergent validity	1. High factor loadings (>0.40) per factor (Gaskin, 2014:5; Farrell & Rudd, 2009:4) 2. Satisfactory variance explained (>50%); desired (>60%) (Costello & Osborne, 2005:7; Field, 2009:637) 3. High average reliability (α=0.7) (Gaskin, 2014:7; Knowledgebase, 2014)
Discriminant validity	1. Elimination all dual-loading criteria (Farrell & Rudd, 2009:5; Gaskin, 2014:4) 2. Inter-correlations of factors below 0.70 (Mathbits, 2014; Knowledgebase, 2014)
FACE VALUE VALIDITY	The factors identified by the analysis make good sense and are partially confirmatory of the theory. No unexpected factors surfaced. The results make good sense (Gaskin, 2014:4).

    * *The sources in the table as used by Imandin et al. (2016) have been retained.*

Source: Imandin et al. (2016)

RESEARCH METHODOLOGY

Design and questionnaire structure

A literature study identified the 11 management and leadership competencies while in-depth theoretical research guided the way towards formulating the 42 specific measuring criteria that were included in the questionnaire. The skills, item code, criteria and origins on which the questionnaire was based, appear in Table 2. The self-generated criteria that appear in the table are based on either multiple authors' (sometimes vague) views on a specific concept or have been formulated based on a similar (but not directly attributable) line of thought some author(s) had.

Table 2:   Additional constructs supported by the literature

Global Leadership Competence	Measuring criteria	Origin
Leading change	1. As a leader, I need to be prepared to help my organisation to keep pace with change 2. I believe that there is a relatively high level of failure in strategic change efforts in organisations 3. As a leader, I need to drive the topic of change, be a change agent myself and promote diversity 4. MBA programmes must include a course on managing strategic change in the core curriculum 5. I believe that most managers do not embrace the reality of regular change in their organisations	Hoffmann (2016); Truxillo et al. (2016); Eulitz (2016); Sinh (2016); Anderson (2017)
Cultural intelligence	6. I believe that cultural intelligence is a critical success factor of the leadership process and organisational transformation 7. Leaders with cultural understanding and sensitivity are better placed to leverage culture and use it to help accomplish organisational goals 8. Increased advances in ICT, the degree of cultural diversity is bound to increase pressure on organisational leaders	Sulaiman & Mohezar (2006); Walker et al. (2003); Hitt, Black & Porter (2005); Hitt et al. (2012); Fong (2016); Alon et al. (2016)
Team building	9. Team performance is a major determinant of the overall organisational performance 10. Business leaders of the 21st century is going to spend a greater portion of their time working in teams 11. I believe that leaders who are collaborative are most successful in their leadership efforts 12. Collaborative leaders generate goodwill in the team, which in turn enhances team performance	MacMillan (2001); Campbell (2006); Hattingh (2016); Reese (2016); Maitland & Anderson-Terry (2017),

Table 2: Additional constructs supported by the literature (Continued)

Global Leadership Competence	Measuring criteria	Origin
Strategic leadership	13. Strategic leadership focuses less on day-to-day events and more on underlying trends and patterns 14. Strategic leadership has the potential to create a competitive advantage for an organisation which is hard for competitors to imitate 15. Strategic leaders envision the future and inspire others to work towards creating a viable future for the organisation 16. Strategic leadership is directly connected to organisational renewal and strategic innovation	Day (2000); Oritz (2004); Hitt et al. (2012); Anderson (2017); Hattingh (2017)
Conflict management	17. I must manage the gaps and tensions that emerge due to the diversity of my team members 18. A leader's conflict management ability is key to the current business environment of diversity, complexity and continuous change 19. If I manage conflict poorly, business performance will suffer	Campbell (2006); Kamal (2015); Reese (2016); Anon. (2017)
Communication skills	20. A leader's performance is closely tied to his/ her communication competence 21. MBA degrees and business education programmes must include communication skills to improve graduates' impact in the workplace 22. Leaders spend a substantial part of their time communicating with their constituents 23. Influencing others is central to leadership, and this is achieved through effective communication 24. Communication will increasingly become networked and matrix-based across multidisciplinary teams	Wiemann (1997); Lannier, Tanner, Zhu and Heady (1997); Tanyel et al. (1999); Fredrickson (2006); Du-Babcock (2006); Simpson (2006); Conrad and Newbury (2011); Giles (2016); Reese (2016); Anon. (2017), Cornellissen (2017)
Global leadership mindset	25. I understand the global mindset is the ability to see beyond national culture, organisational boundaries, and local business opportunities. 26. The global leadership mindset is essential for success in the 21st century because it enables leaders to embrace paradox and complexity	Rogers and Blonski (2010); Cohen (2010); IGIGlobal (2017)

Table 2:   Additional constructs supported by the literature (Continued)

Global Leadership Competence	Measuring criteria	Origin
Emotional Intelligence	27. I understand self-awareness to be a key part of emotional intelligence 28. Emotional intelligence can result in an outstanding performance at work. An emotionally intelligent leader is aware of relationship management as well as task orientation 29. An emotionally intelligent leader is aware of relationship management as well as task orientation 30. If I am emotionally intelligent, I understand the impact that my emotions and behaviour would have on others around me.	Cherniss et al. (1998); Ovans (2015); Boyatzis, Goleman & Rhee (2000); Abatiello et al., (2017); Stein (2017)
Ethical and External influences	31. The public has higher expectations these days for the ethical behaviour of companies 32. MBA graduates are required to reflect greater ethical awareness – especially since the 2008 crisis 33. Leaders in business are regularly faced with ethical issues such as bribery, corruption, kickbacks for contracts among others 34. Leaders must have a basic knowledge of ethical language and behaviours in their daily interactions	Sulaiman & Mohezar (2006; 2009); Whetten & Cameron (2015:37); Giles (2016); Bisschoff (2017)
Career awareness	35. I am aware that employees are required to have technical skills in the digital economy 36. Lifelong learning is an essential feature of career development in the knowledge economy 37. Career planning is part of my self-development – rather than my employer's responsibility 38. I am aware that even technical jobs require soft skills such as creativity, collaboration and business savvy	Carr (2008); Hogan & Hogan (2001); Nanterme (2016); Accenture (2016)
Personal value system	39. I apply my own beliefs, values, ethics, knowledge and skills in my leadership style 40. Leadership behaviours are to be built on character as a foundation 41. Ethical lapses in business are partly a result of character flaws of leaders 42. The demonstration of solid character is going to be an indispensable quality of 21st century leaders	Hernez-Broome & Hughes (2004); Tubbs & Schulz (2006); Satija (2009); Berger et al. (2012); Katulwa (2015); Katulwa (2016); Dillon and Bourke (2016)

The questionnaire contained two sections: Section A: Demographics and Section B: Measuring criteria. Section A consists of eight questions to compile the demographic profile of the respondents. Section B consists of the 11 management and leadership skills, each with its measuring criteria, in statement format to which the respondents had to indicate their level of agreement or disagreement on a five-point Likert scale. In total, Section B consisted of 42 measuring criteria (see Table 2 above).

Data collection

The population was all executive MBA students at two private business schools. These schools have a wide geographic service area which covers the whole of South Africa. Annually these students attend study schools in the major centres, Durban and Johannesburg. During such a study school in June 2017, the data were collected. The attendees were requested to complete the questionnaires in a classroom context. It was clearly indicated that participation is voluntary and also anonymous. Trained research assistants, of which most were lecturers well acquainted with academic research, distributed, assisted and collected the questionnaires. A total of 385 questionnaires were distributed and 362 completed, and usable questionnaires were collected. Some 21 were incomplete and could not be used while two questionnaires were not returned. This resulted in an effective 94.0% response rate. The data were captured by the Statistical Consultation Services of the North-West University and analysed with the IBM Social Package for Social Sciences Version 24 (SPSS, 2017).

Ethical clearance

The study was classified as an ethically low-risk category study and ethically cleared by the Ethics Committee of the Faculty of Economic and Management Sciences at the North-West University. The low-risk category requires only approval, and no formal ethics number was issued.

RESULTS

Reduction of the measuring criteria

Studies by Fields and Bisschoff (2013a; 2013b) and Bisschoff and Moolla (2014) successfully simplified and purified their measuring instruments using exploratory factor analysis. The exploratory factor analysis (EFA) employed a Varimax rotation because of its ability to maximise variance explained (Field, 2009:642). As indicated the following statistical decision criteria, as applied by Bisschoff and Moolla (2014:1116), were implemented:

- Factor loadings of 0.40 and higher (Fields & Bisschoff, 2014:48-49);
- A cumulative variance that exceeds 50% (Schunn & Wallach, 2012; Costello & Osborne, 2005:7); preferably 60% (Field, 2009:662);
- A Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy higher than 0.70 (Field, 2009:660);
- Bartlett's test of sphericity needs to be lower than 0.05 (Field, 2009:660 & 648); and
- Reliability, as measured by Cronbach's Alpha, to exceed 0.70 (ideally) (Field, 2009:675); also sets a secondary lower limit of 0.57 (Cortina, 1993:102).

The data required four rounds to purify to eliminate all non-loading criteria (<0.40) and dual-loading criteria (criteria that load high on more than one factor). This purification helps to improve the validity of the analysis (Gaskin, 2014) and to simplify the results into an operational model that can be used to measure managerial and leadership competencies in practice. The results of the four successive rounds of the exploratory factor analysis appear in Table 3 below. The table shows which criteria were eliminated after each round of analysis and also how that elimination affected the statistical indicators. (See the criteria in Appendix A as per item codes.)

Table 3:   Purification of the measuring criteria

ROUND	VAR. EXPL.	KMO	BART-LETT	NO. OF FACTORS	ALPHA	CRITERIA ELIMINATED*
1	62.3%	.937	.000	10	.947	COS5, EEI3, EEI4, GLM1, PVS3, PVS4, TEB1
2	58.1%	.935	.000	7	.938	CAW1, COM1, EMI1, GLM2, STL3
3	57.2%	.933	.000	7	.935	LEC3, STL2, TEB4
4	56.5%	.920	.000	5	.933	***

*   See Appendix A for criteria codes

Table 3 shows that the cumulative variance explained decreased from 62.3% to 56.5% as the 42 criteria decreased to 25 when the low-loading and dual-loading criteria were omitted. Additionally, the number of factors also reduced to five clear factors. This significantly simplified the model by eliminating 17 non-contributory criteria and five factors which explained low variance for the loss of only 5.8% of the total variance. The other statistical measures remained excellent with marginal differences in the sample adequacy (KMO), sphericity (Bartlett tests) and reliability (Alpha coefficients) that all remained very favourable with both the Alpha coefficient and the KMO exceeding 0.90 in all four cases, while Bartlett's test of sphericity also remained below the required 0.05 level. The real value of purification, however, resides with the reduction of the number of factors (from ten to five) and thereby creating a much more measurable and manageable model of leadership and managerial competence. The loss of 5.8% of the total variance explained is but a small price to pay for the additional validity gained by the reduction in the number of factors and measuring criteria (Hill & Hughes, 2007:8).

Factor analysis

The results of the final round (and simplified factor model) are shown in Table 4 where the sample adequacy by KMO and sphericity of Bartlett's test are shown, respectively.

Table 4: KMO and Bartlett's tests

Kaiser-Meyer-Olkin measure of sampling adequacy.		.920
Bartlett's test of sphericity	Approx. chi-square	2997.081
	df	276
	Sig.	.000

Table 5 shows the five factors that were extracted after the varimax rotation. These factors explain a cumulative variance of 56.5%. The rotated factor loadings are shown in Table 5.

Table 5: Rotated factor analysis

Criteria	F1	F2	F3	F4	F5
com3	.715				
lec1	.705				
lec2a	.659				
cos1	.627				
caw3	.623				
caw4	.620				
cos2	.619				
com2	.549				
caw2	.549				
ee11		.623			
cos3		.620			
teb2		.619			
stl1		.579			
cus3		.541			
ee12		.491			
emi3			.805		
emi4			.721		
emi2			.715		
lec2			.501		

Table 5: Rotated factor analysis (continued)

pvs1				.710	
pvs2				.700	
lec4				.469	
cus2					.837
cus1					.798
Variance	18.2%	11.4%	10.8%	8.6%	7.5%
Cum. variance	18.2%	29.6%	40.4%	49.0%	56.5%
Cronbach Alpha	.886	.715	.780	.556	.783

In Table 5 the factor loadings of the criteria and the variance explained by the factors appear. The variance explained shows that Factor 1 is the most important factor explaining 18.2% of the variance, followed by Factor 2 which explains 11.4%, down to the least important Factor 5 which explains 7.5% thereof. Cumulatively the factors explain 56.5% which is higher than the initially required 50%, but slightly lower than the desired good fit at 60% of the variance explained.

Regarding the reliability of the factors, all of them except Factor 4 have excellent reliability coefficients more than the required 0.70. Inexplicably, Factor 4 has a Cronbach Alpha coefficient of 0.556. This is marginally below Cortina's 0.57 margin and indicates that the factor cannot be deemed reliable. However, a low reliability coefficient does not mean that a factor is of lower importance for the current study, it merely renders a verdict on the likelihood that this factor will present itself in a repetitive study of similar nature. Although this factor shows a lower likelihood to do so, Morgan (2017) warns that care should be taken in the absolute interpretation of coefficient Alpha. Coefficients of 0.50 and higher are also deemed usable when researchers operationalise their research (Morgan, 2017). The table also shows the measuring criteria about each factor. After consideration of the criteria within the factors, the five factors were labelled and explained.

Factor 1: Leadership skills

Factor 1 is the most important factor, explaining 18.2% of the variance, and deals with a range of issues that broadly relate to leadership skills. More specifically,

Factor 1 consists of leadership skills such as conflict management, soft managerial skills, career planning, change management and communication.

Factor 2: Managerial challenges

Factor 2 deals with issues about managerial challenges and also diversity management issues. Hence, initially, the line of thought was to label it as such. However, closer scrutiny revealed that diversity management issues actually do pose specific challenges to management. Factor 2 is regarded as a realistic subset of managerial challenges faced by South African managers and explains 11.4% of the variance.

Factor 3: Emotional intelligence

Factor 3 is related to emotional intelligence. In the context of the modern digital economy, Abbatiello et al. (2017) argue that emotional transformation is regarded as critical in the transformation of both the leadership process and the organisation. This means that leaders need to *react* differently to management and leadership in an organisation. The factor explains 10.8% of the variance.

Factor 4: Personal value system

Factor 4 deals with personal value systems of a leader and explains 8.6% of the variance. Interestingly, this factor has been found in a number of studies seeking to determine managerial and leadership competencies (Tubbs & Schulz, 2006; Kanter, 2010; Katulwa, 2015; 2016; Barrett Values System, 2017). These studies note that, in the context of volatility and uncertainty, leaders can remain effective in their roles "by applying their leadership attributes such as beliefs, values, ethics, character, knowledge and skills". The results of these studies confirm that managers and leaders will need to continue to depend on their portfolio of personal experiences and value systems. Here, Berger et al. (2012) confirm that a personal value system is a skill required by managers and leaders to create and facilitate career-defining experiences.

Factor 5: Cultural sensitivity

Factor 5 is the least important factor and explains 7.5% of the variance. This factor deals with the competence of cultural intelligence; a widely recognised critical factor for leadership success and organisational transformation (Maznevski, Stahl & Mendenhall, 2013). Increased globalisation has amplified cultural diversity in the workplace and made the ability to lead across cultures a critical managerial and leadership competence for effective managers (Stevens et al., 2014).

Factor correlations and multiple regression analysis

Pearson correlation coefficients were calculated to determine the relationships between the factors. All the factors showed high inter-factor correlations ($p \leq 0.05$). These high correlations require a more in-depth analysis into how these factors influence one another, for example, to use a regression function (Galkins & Andrews, 2014). *Factor 1: Leadership skills* are the most important factor because it explains the highest variance. Consequently, multiple regression was used to determine how Factors 2, 3, 4 and 5 (as independent variables) contribute towards Factor 1 as the dependent variable). The results appear in Table 6.

Table 6:   Multiple regression on factors

Model		Nonstandardised Coefficients		Standardised Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.149	.170		6.776	.000
	Factor 5	.083	.030	.119	2.797	.005
	Factor 4	.157	.033	.197	4.784	.000
	Factor 3	.235	.037	.288	6.425	.000
	Factor 2	.320	.045	.336	7.150	.000
a. Dependent Variable: Factor 1						

The table shows that all four independent variables (Factors 1-4) are significant ($p \leq 0.05$) contributors to Factor 1, with Factor 2 contributing the most (.336) down to Factor 5 (.119) which contributes the least. In practice, this means that Leadership skills (Factor 1) can be improved by Managerial skills (Factor 2) with a regression weight of .336, and also by Emotional intelligence (Factor 3) with a regression weight of .288, by Personal value system (Factor 4) with a regression weight of .197 and by

Cultural sensitivity (Factor 5) with a regression weight of .119. This then means that to improve Leadership skills, it is worth the while to develop Managerial skills first as this will yield the highest positive return on the leadership skills. This is also true in their declining order of importance for the other factors. The calculated R^2=.533 (Adjusted R^2=.528) for the function means that the variance declared is 53.3%. This is satisfactory.

The regression function then constitutes:

$$Y = 1.146 + .336X_1 + .288X_2 + .197X_3 + .119X_4$$

Substitution with the factor labels, the function reads:

Leadership skills (Y) = 1.146 + (.336 x Managerial skills) + (.288 x Emotional intelligence) + (.197 x Personal value system) + (.119 x Cultural sensitivity)

Interpretation of the regression function means that *managerial skills* are the biggest predictor of *leadership skills*, followed by *emotional intelligence*. *Cultural sensitivity* has the lowest predictable influence on *leadership skills*. In practice, this means that an improvement in managerial skills will benefit and improve leadership skills more than the other factors and should be attended to first. Leadership development programmes should then firstly include teaching managerial skills, secondly attempt to improve emotional intelligence, then aim to instil a personal value system, and finally, try to increase cultural awareness.

Validity measures

Finally, the simplified model requires judgement on the relevant validity measures required (refer back to Table 1). The validity measures applied to the model that measures management and leadership competencies were adopted from Imandin et al. (2016) who successfully applied it in their research. These measures are the external validity (using both population and ecological validity), internal validity, criterion validity (using both concurrent and predictive validity), content validity, construct validity, and criterion-related validity (using both construct and discriminant validity). After comparing the results of the analyses to the perspective validity measures in Table 1, it was concluded that the simplified model achieved validity of all the requirements except for one validity category, namely *Criterion validity*.

Criterion validity consists of both *content* and *predictive* validity. These two sub-requirements and the reasons for failure to meet them are explained below:

- *Content validity* is where the results of the model are required to be tested against benchmark tests performed only in literature sources (CollegeBoard, 2012; CSU, 2014, both as cited by Imandin et al., 2016). This study is an exploratory study. This means that at present there are no directly comparable benchmarks to test the model against. Hence the model could not be tested, and validity cannot be determined. Once such benchmarks become available, research can confirm or determine if the model achieved validity or failed to do so.

- *Predictive validity* requires that the model is operationalised and that these predictions than being scrutinised to ascertain that they are correct, thus validating the operational side of the model (Shuttleworth, 2013). Surely, this is a very important step in the final validity of the model, but at present, this is future music. The exploratory model did not yet predict outcomes and as such also here the verdict is out on this validity category until such predictions could be made and then evaluated for accuracy.

In conclusion, the model passed all but one futuristic validity measure. The model is thus deemed to be valid until future research either confirms or deny its content and predictive validity.

A MODEL TO MEASURE MANAGERIAL AND LEADERSHIP COMPETENCIES

The analyses enabled the development of a model to measure management and leadership competencies. In total 17 criteria were omitted from the theoretical model. The model has five factors that explain a cumulative variance of 56.5%. Four factors have excellent reliability while the fifth factor shows moderate reliability. The model is shown in Figure 1.

Figure 1: A model to measure management and leadership competence
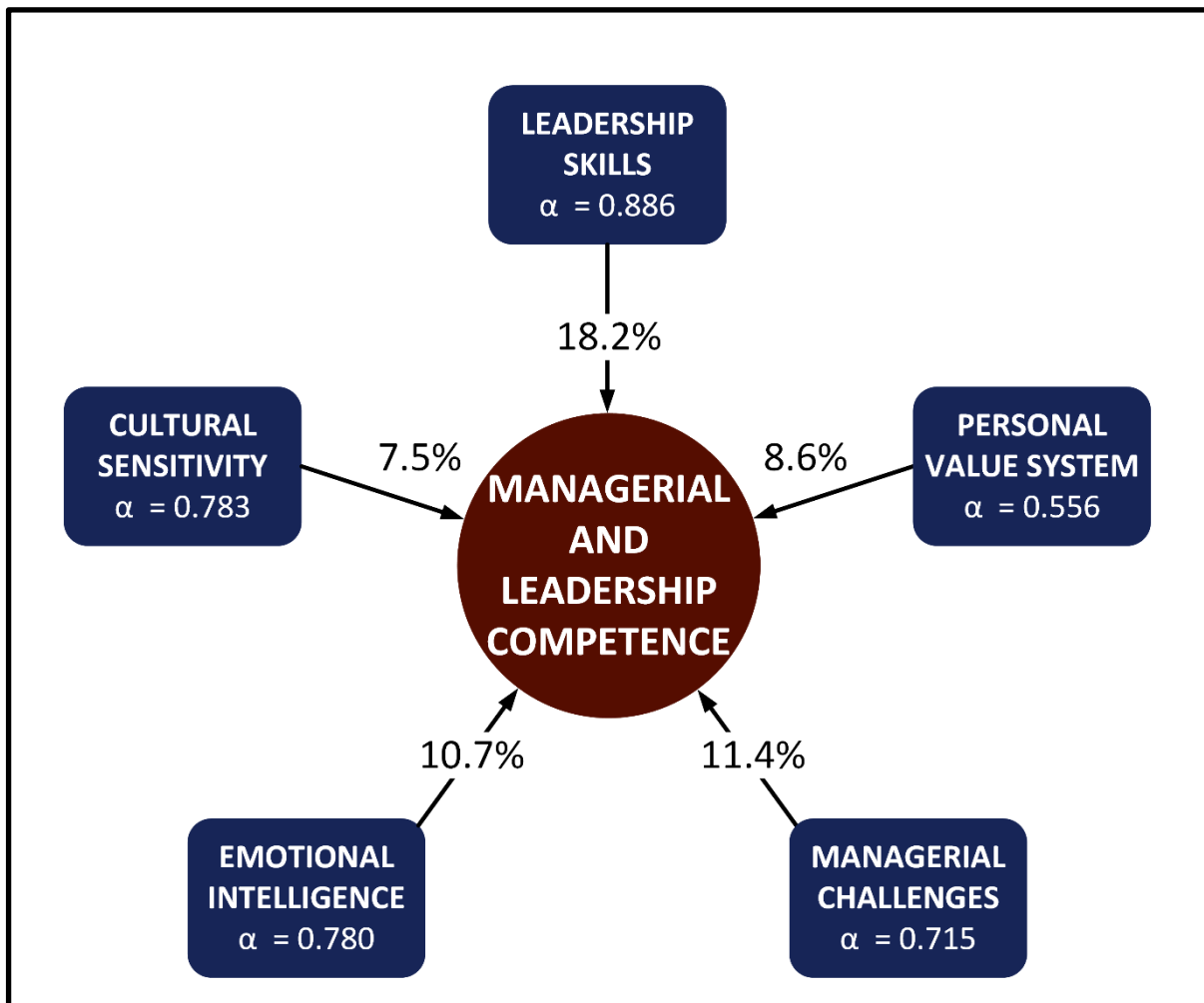
Figure 1 shows that the five factors identified do not consist of sub-factors or further underlying variables. This is important because it indicates that the factors identified are pure and do represent the management and leadership competencies as they were labelled. *Factor 1: Leadership skills,* is the most important factor in the model explaining 18.2% variance, followed by *Factor 2: Managerial challenges* at 11.4% variance. Likewise, *Factor 5: Cultural sensitivity* is then the least important factors with an explained variance of 7.5%.

CONCLUSIONS

From the analysis, the following conclusions can be drawn.

Conclusions 1 and 2:

This article identified management and leadership competencies and its respective measuring criteria. Strongly literature orientated, the study identified eleven management and leadership competencies, measured in total by 42 criteria. The study scientifically reduced the eleven competencies to a more manageable five factors, measured by 25 criteria (thereby reducing the measuring criteria by 17).

- It is concluded that the study succeeded to significantly simplifying the model to measure management and leadership competencies.
- Based on the conclusion above, it is also concluded that the simplification of the model now enables an easier operalisation of the model in the industry, thus putting academic research to use in practice.

Conclusion 3 and 4:

The success of simplifying the model and achieving satisfactory reliability and validity can be attributed to a high sample adequacy as measured by Kaiser-Meyer-Olkin (KMO). (This study had a KMO value of .933.). Additionally, sphericity (as measured by Bartlett) measures if the data are suitable for factor analysis. Here the Chi-square for this study was 2997.081, the degree of freedom was 276, and the significance was below 0.05. The cumulative variance, as explained by the five factors, is also satisfactory at 56.5%. It is thus concluded that to develop or simplify a model successfully:

- An adequate sample is required; and
- Sphericity is tested to ensure the data's suitability to be subjected to further analysis. Without these gatekeeper statistics, the attempts to develop a model are risky.

Conclusion 5:

- The validity measures showed good content, internal and external and discriminant validity (in support of other validity criteria). Resultantly, it is concluded that the model to measure management and leadership competencies is a valid model to do so.

Conclusion 6:

- Leadership skills and managerial challenges are the most important factors in the model showing that modern leaders should hone their leadership skills in the fast-changing business environment of the Fourth Industrial Revolution, while managers are required to apply their skills to conquer the challenges the business environment throws at them to maintain competitiveness and efficiency.

Conclusion 7:

- Also, leaders and managers should apply their competence in the areas of cultural sensitivity, emotional intelligence and develop a personal value system to successfully negotiate the 21st century challenges to manage their diverse cultural workforce wisely, leading by example based on high personal values.

SUMMARY

In this article, the latent variables or factors to measure management and leadership competencies have been identified and modelled. In addition to simplifying the original set of measuring criteria, the model was also subjected to reliability and validity confirmation. The model is reliable and returned satisfactory reliability coefficients. Regarding the validity, the model proved to be valid in all except the future validity requirements. This cannot yet be determined, and future research should be employed to ensure the model can predict management and leadership competencies accurately. As a result, the article presents a usable validated model to measure management and leadership competencies of managers and leaders. The model is also a managerial tool for managers to employ if they want to measure the competencies their managerial or leadership staff have while it provides a solid theoretical basis for future academia in their managerial competency-related research projects.

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APPENDIX A: LIST OF DELETED CRITERIA

Code	Criteria	Elimination round
COS05	Communication will increasingly become networked and matrix-based across multidisciplinary teams	1
EEI03	Leaders in business are regularly faced with ethical issues such as bribery, corruption, kickbacks for contracts among others	1
EEI04	Leaders must have a basic knowledge of ethical language and behaviours in their daily interactions	1
GLM01	I understand the global mindset is the ability to see beyond national culture, organisational boundaries, and local business opportunities.	1
PVS03	Ethical lapses in business are partly a result of character flaws of leaders	1
PVS04	The demonstration of solid character is going to be an indispensable quality of 21st century leaders	1
TEB01	Team performance is a major determinant of the overall organisational performance	1
CAW01	I am aware that employees are required to have technical skills in the digital economy	2
COM01	I must manage the gaps and tensions that emerge due to the diversity of my team members	2
EMI01	I understand self-awareness to be a key part of emotional intelligence	2
GLM02	The global leadership mindset is essential for success in the 21st century because it enables leaders to embrace paradox and complexity	2
STL03	Strategic leaders envision the future and inspire others to work towards creating a viable future for the organisation	2
TEB04	Collaborative leaders generate goodwill in the team, which in turn enhances team performance	3
STL01	Strategic leadership focuses less on day-to-day events and more on underlying trends and patterns	3
STL02	Strategic leadership has the potential to create a competitive advantage for an organisation that is hard for competitors to imitate	3

CHAPTER 5

ARTICLE 4:

MEASURING MANAGEMENT AND LEADERSHIP COMPETENCIES OF BUSINESS SCHOOL EDUCATED MANAGERS IN SOUTH AFRICA

This article is currently being prepared according to the author guidelines so that it can be submitted to the *Journal of Contemporary Management* (Thompsons ISI listed).

MEASURING MANAGEMENT AND LEADERSHIP COMPETENCIES OF BUSINESS SCHOOL EDUCATED MANAGERS IN SOUTH AFRICA

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ABSTRACT

This paper explores a model to measure managerial and leadership competence of business school educated managers. It starts by reviewing the literature on general management and leadership, seeking to establish a broad theoretical framework to guide this study. After statistically ensuring that the respective theoretical measuring criteria selected do actually measure the specific management and leadership competency, the paper then presents a model to measure management and leadership competencies. The final model has a total of eleven management and leadership competencies. These are *Personal Value System, Career Awareness, Ethical and External Influences, Leading Change, Cultural Sensitivity, Team Building, Strategic Leadership, Conflict Management, Communication Skills, Global Leadership Mindset and Emotional Intelligence.* This paper goes on to statistically measure the management and leadership competencies while also determining if the demographic variables influence the management and leadership competencies in any way. Also, the paper seeks to determine if any significant correlations exist between management and leadership competencies. The results of this study are of value to business school educated managers who aim to improve their managerial and leadership skills. It is also of value to researchers and scholars who intend to explore this avenue of managerial and leadership competency models further.

Keywords: Management, leadership, competencies, validity, measurement.

Jel code: **M19**

INTRODUCTION

In the current highly integrated global economy where many organisations operate across multiple geographies, the importance of a talented and competent workforce is axiomatic. Competent employees are not only central to productive and enriched work environments but also contribute to prosperous outcomes for organisational performance (Jena & Sahoo, 2014). These, and other, business environmental issues have generated an urgency among organisations to build their executive teams with the requisite managerial and leadership competencies, so that these competencies can be deployed in a manner that achieves superior individual and organisational performance.

Previous studies in the field of work-based competencies demonstrate a link between managerial and leadership competencies, and superior executive performance. Following the formalisation of management and leadership competencies as a managerial concept, management and leadership competencies have gained significant impetus as a substantive management focus area in recent human resource management literature (Lewis, Donaldson-Feilder & Tharani, 2012:19; Sinh, 2016; Bagraim et al., 2016:18). The concept of competency-based human resources has been explored by David McClelland (1973). Since then it has moved from a novel approach to widespread practice in the last four decades since McClelland first proposed it as a key differentiator of performance. According to research in this area by Analoui and Hosseini (2001) and later by Boyatzis and Ratti (2009), managerial effectiveness is strongly correlated to organisational effectiveness and economic performance. In this respect, Analoui and Hosseini (2001) argued that competent managers and leaders have played a significant role in the overall success of their organisations and development of their societies. In an earlier study, Boyatzis and Case (1989) found that management educated graduates, and more specifically MBA graduates, displayed a greater number of skills and competencies related to effective managerial performance. Later, as more studies were completed (Analoui & Hosseini, 2001; Mintzberg, 2004, 2005, 2008; Camuffo et al., 2009), patterns of managerial and leadership competencies could be observed that recurrently appeared to distinguish exceptional performers. This led to the development of numerous competency models; this avenue of research is even

more relevant today where managers are confronted by the disruption of the Fourth Industrial Revolution (Cornellissen, 2017).

Most recently though, relentless change within and outside organisational boundaries, coupled with volatility and uncertainty in the general business environment, has forced managers and leaders to rethink organisational design and the managerial skills sets required to succeed under such circumstances. In this regard, Hoffmann (2016:12) warns that conventional organisational structures with multiple hierarchical levels will disappear in the context of the Fourth Industrial Revolution. In line with this view, Bauer (2016) confirms that the modern organisation has to develop and learn continuously and that the shifting organisational boundaries will lead to adjusted organisational structures. One key aspect, as highlighted by Sinh (2016:14), is that, in contrast to a conventional executive, effective contemporary leaders are characterised by their openness and willingness to embrace change and innovation. Thus, with the acceleration in innovation and massive disruptions in global business brought about by the digital economy, Cornellissen (2017) warns that managers and leaders must have the skills and competencies to identify managerial problems and know suitable strategies to fix them.

Given this background, the purpose of this study is to measure management and leadership competencies of business school educated managers in South Africa. The current study also attempts to determine if significant correlations exist between the demographic variables and management and leadership competencies as well as determine if significant correlations exist between the management and leadership competencies.

PROBLEM STATEMENT

The profile of the 21st century workplace is undergoing large-scale and fundamental changes. Managers, therefore, have to operate in a complex environment and are required to respond rapidly to demands that are, at most times, unpredictable (Bagraim et al., 2016:18). In recent years though, there has been a rising surge of contemporary criticisms of management education as well as approaches to management and leadership development (Varela, Burke & Michel, 2013). A number

of these post-2000 studies assert inadequacies in the development of managerial skills and competencies (Mintzberg, 2004; Pfeffer & Fong, 2004). The seminal claim by one of the pioneering proponents holding this view, Mintzberg (2004:199) stated that "management education sits worlds apart from that of management development".

Despite the growing concerns about the impact of graduate management education, Boyatzis and Case (1989) argued that few studies have measured their impact on the development of students' managerial and leadership competencies. Here Camuffo et al. (2009) contend that even in instances where researchers support the hypothesis that management education leads to enhanced managerial performance, measurement of the specific skills and competencies associated with such management education remains somewhat hazy and unclear. This is especially true in the South African context where, apart from studies by Thekiso (2011) and Shaikh (2013), there is a dearth of such scientific and empirical research. This article, therefore, addresses this specific problem of measuring management and leadership competencies amongst business school educated managers in South Africa.

RESEARCH OBJECTIVES

The primary objective of this article is to measure management and leadership competencies of business school educated managers in South Africa.

This primary objective is achieved by addressing the following secondary objectives:
1. Theoretically study management and leadership;
2. Ensure statistically that the respective theoretical measuring criteria selected to measure the specific management and leadership competency, do so;
3. Compile a demographic profile of the respondents;
4. Measure the management and leadership competencies;
5. Determine if significant correlations exist between the demographic variables and management and leadership competencies;
6. Additionally, determine if significant correlations exist between the management and leadership competencies; and

7. Draw conclusions and present recommendations for management and leadership competencies in South Africa.

THEORY ON MANAGEMENT AND LEADERSHIP

To ground the theoretical framework of this study, literature is presented on the role of management and leadership in organisations, with brief discussions on the nature of management and the nature of leadership. Second, a brief debate on whether management and leadership are theoretically a different or interrelated concept is presented, explaining the various paradigms held by diverse researchers and scholars. Lastly, an attempt is made to reconcile the long-standing debate around whether effective management and leadership are all about nature or nurture.

The role of management and leadership in organisations

The challenges of being an effective manager never have been greater. In a globalised economy that is characterised by rapid advances in technology and hyper-competition, organisations have become highly complex and exposed to constant change. Smit, Botha and Vrba (2016) suggest that, in addition to dealing with issues such as climate change, sustainability, business ethics and corporate governance, present-day managers must also be sensitive to cultural differences that are central to doing business around the globe.

In the South African environment specifically, Smit et al. (2016) go on to argue that organisational managers are facing even greater challenges such as a politically turbulent environment characterised by corruption and bribery. Coupled with these challenges, a very tough labour market, a volatile public higher education sector and Black Economic Empowerment transformation charters for almost every sector of the South African economy, managers have to reflect on sound management principles to be effective in meeting organisational outcomes.

In response to the question: "Why does management matter?", Achadinha et al. (2016:1-2) offer a range of reasons which demonstrate that well-managed organisations are more competitive and effective in meeting consumers' needs, generating greater revenues, ensuring a skilled workforce and ultimately serving the needs of society. In support of this notion, Northouse (2013) points out that a manager's link to business performance is even more relevant at present times and

that management is a key success factor in the modern business environment. Smit et al. (2016:4) put forward the view that while organisations have been part of human life for centuries, societies depend on business organisations now, more than ever before, to meet the changing needs of all its members. Competent managers are therefore required to help organisations achieve their mission and goals and be successful in building prosperous societies.

The nature of management

Organisations, especially business organisations, serve the needs of societies in a number of ways by transforming resources into goods and services that societies need. To achieve the organisations' mission and goals, however, capable managers are required to stimulate and guide the organisation to deploy its limited resources in productive and purposeful ways. Accordingly, in carrying out their tasks, managers still perform the four fundamental functions: planning, organising, leading and controlling (Smit et al., 2016:6). The following figure illustrates the management functions as a logical sequence of decisions.

Figure 1:   **Management functions**
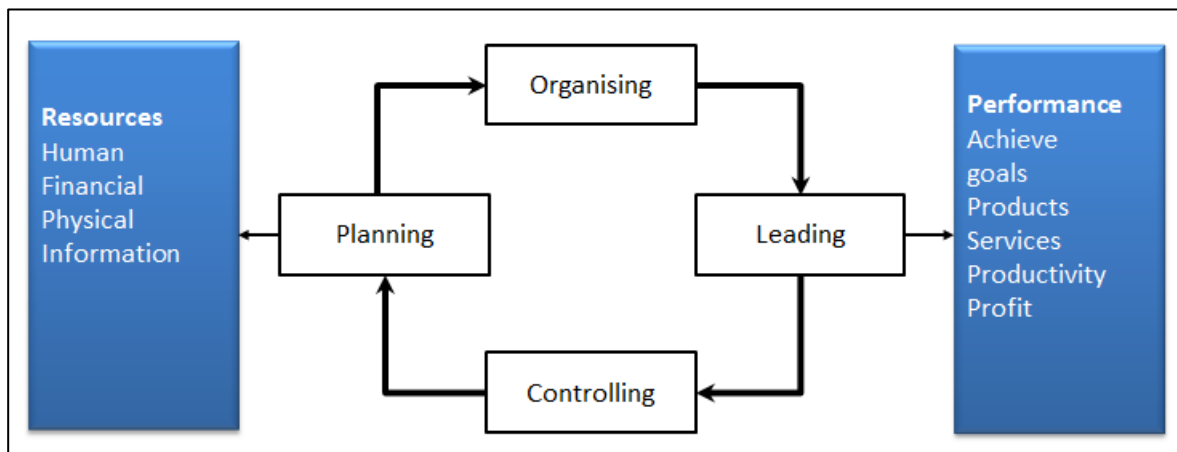
Source: Smit, Botha and Vrba (2016:8)

Managerial roles

In general terms, management refers to getting things done through people. Management, however, is a generic term that is open to various interpretations (Mullins, 2010:425)). Achadinha et al. (2016:2) more formally describe management as a "process of coordinating work activities through the functions of planning, organising, activating (leading) and controlling". Here, the notion of "coordinating work activities" is what Achadinha et al. (2016) use to distinguish a managerial position from a non-managerial one. Bagraim, Cunnigham, Potgieter and Viedge (2016:18) however argue that managers can no longer adhere to the rational view of planning, organising, leading and controlling. Instead, reflecting the chaos that best describes the present circumstances in businesses globally, Bagraim et al. (2016:18) put forward a view that most managers are involved in a variety of "intense, brief and disconnected activities" that they are required to work on. In other words, managers are often required to perform multiple roles at any given time.

Table 1 below sets out the multiple roles of modern-day managers:

Table 1:   The multiple roles of managers

Interpersonal roles	• Figurehead of the team, unit or organisation • Leader of team members • Liaison with lateral contacts inside and outside the team and organisation
Informational roles	• Monitor, collector and assimilator of information • Disseminator of information • Spokesperson, keeping influential others informed
Decision roles	• Entrepreneur, agent of change • Disturbance handler, restoring functionality and performance, problem solver • Resource allocator • Negotiator in interpersonal and group relationships

Source: Bagraim et al. (2016:18)

The role distribution framework above is particularly useful in explaining why managers cannot simply move systematically or sequentially from planning to organising to leading and finally to controlling. The volatility of their environments (inside and outside the organisations) and the multiplicity of their expected roles require a more flexible managerial approach. Therefore, given that managers operate in a complex and largely unpredictable environment, Goleman (2013) suggests that high performing managers must have three main focus areas to be effective in their multiple roles.

Figure 2:   Main focus areas for high-performing managers
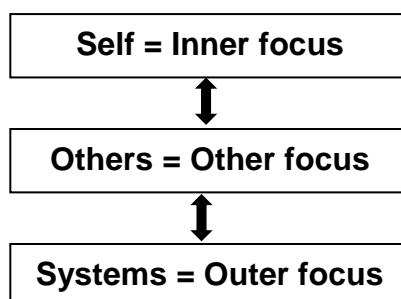
Source: Bagraim et al. (2016:18)

Managing in the global environment

Globalization, technological development and changing customer needs create an environment of continuous fluctuation, discontinuity and change; all of which challenges the abilities of managers to anticipate and proactively deal with change. Compounding these difficulties, in a country like South Africa which is characterised by substantial diversity, managers have the additional challenges of developing shared values, building capacity and creating a team-based organisation where diversity becomes a competitive advantage (Robbins & Judge, 2014). To manage diversity in the workplace, a manager must be able to identify the dimensions of diversity in the workplace. Achadinha et al. (2015:187) suggest that these are divided into primary dimensions of diversity (race, gender, ethnicity, age, culture and physical ability) and secondary dimensions of diversity (education, religion, income levels, parental status, marital status, differences in geographical locations and work experience). The challenge for a manager, therefore, is to synergise these dimensions of diverse work teams to ensure that all role-players within teams contribute toward shared objectives and organisational outcomes.

LEADERSHIP

The Nature of Leadership

Leadership can be regarded as the fundamental sphere in managerial functioning that is correlated to individual and organisational success, financial performance and overall success (Lussier & Achua, 2013). There are many different definitions of leadership, and a general review of the literature would provide a plethora of definitions, sometimes differing significantly according to different societal norms and cultures. A common definition offered by Achadinha et al. (2015:206) explains leadership as the process of influencing organisational members to such an extent that they willingly work towards the achievement of organisational goals and outcomes.

Leadership as a construct and leadership theories, however, have evolved significantly over time and as such produced varying approaches to its interpretation (Ayers, 2015). In this regard, Bagraim et al. (2016: 396) put forward a view that the way in which present-day organisations respond to the new challenges of radical change and immense volatility is fundamentally tied to the values, attitudes, styles and responses of their leaders. De Wit (2017) presents a contemporary, if not

radical, view of the nature of leadership as senior management's desire for organisational chaos as a prerequisite for strategic renewal. This means the unfreezing of existing structures, processes, routines and beliefs, and opening employees up to new possibilities of doing business with creativity and innovation. Following through with this argument, De Wit (2017:567) suggests that leaders ought to release the "energy, creativity and entrepreneurial potential pent up in their organisations" and must, therefore, be willing to let go and allow "some chaos to exist".

Difference between management and leadership paradigm

It has long been argued that not all managers are necessarily leaders, and not all leaders can necessarily be considered as managers (Robbins and Judge, (2012:174)). Accordingly, the difference between management and leadership is seen as an ambiguous, inherently complex and long-standing debate. Historically, management and leadership have been described as being comprehensively researched yet having a high level of ambiguity about their conceptual underpinnings (Burns, 1978; Grint, 2005) and even being grounded in different academic disciplines (Ghoshal, 2005; Gill, 2006).

This may be primarily due to the distinction of leadership being based on the basic premise of change in organisations (Brocklehurst, Grey & Sturdy, 2009:7), while management is about producing disciplined results. In their paper, however, Edwards et al. (2015), while acknowledging the issues of change, explore notions of power as a point of departure for further theoretical debate and research. They go on to develop a four-part conceptual framework that includes: managers "doing" leadership, managers "becoming" leaders, "being" leaders and managers, and leaders "doing" management (see Figure 1).

Figure 3: Perspectives on management and leadership
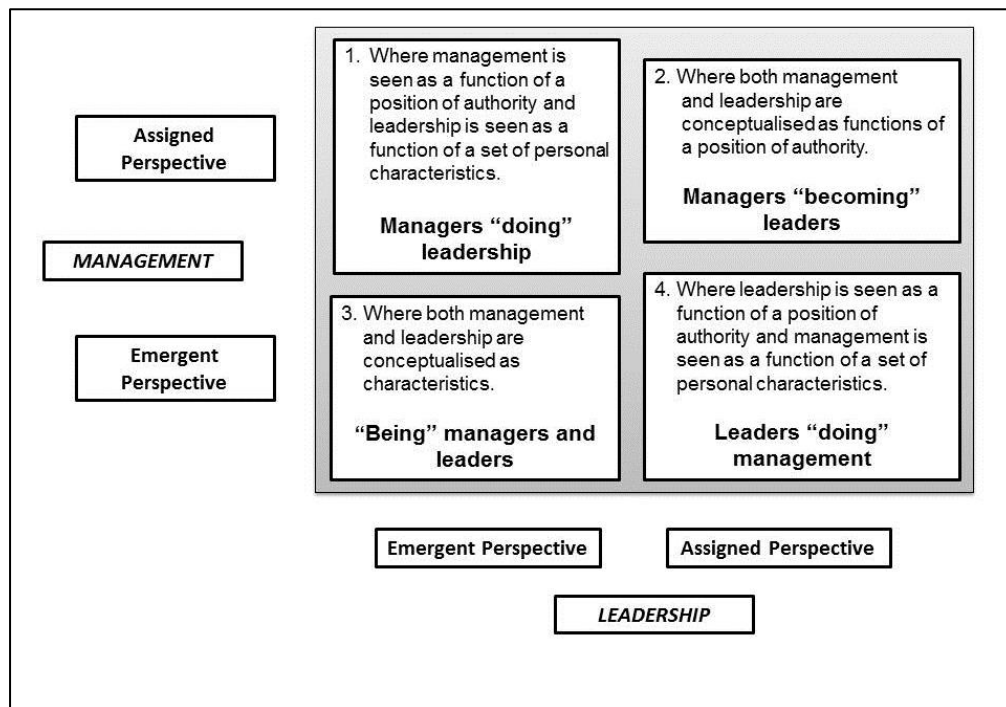
Source: Edwards et al. (2015)

Framing the differences between management and leadership within a paradox of control and chaos, the proposition of organisational chaos by De Wit (2017) as an essential prerequisite for strategic leadership can sound quite alarming for managers who seek to plan, organise, lead and control systematically. This view is useful in explaining that while managers seek order, control and disciplined implementation of plans, leaders seek to stimulate new ways of thinking about business by allowing experimentation and innovative initiatives. Leaders thereby accept a certain amount of disorder, expecting it to pay off regarding organisational success in the long run.

Taking a strategic management perspective, De Wit (2017:566) argues that while operational control gives managers influence over the activities within the current organisational system, strategic control gives leaders influence over changes to the organisational system itself.

Whilst this succinct juxtaposition attempts to simply frame the essential differences between managerial and leadership needs for control and influence, such an assessment belies the relative failure of leadership research to provide adequate

clarity in interpreting the relationship between management and leadership in ways that are both nuanced and practical for those required to practice both (Sinclair, 2007).

Interrelationships between management and leadership paradigm

The conundrum as to whether management and leadership are interrelated or mutually exclusive is however still being debated in contemporary academic arguments (Walters, 2016; Aruda, 2016). The trajectory of this debate continues to move through the differences between management and leadership (Zaleznik, 1977) while Kotter (1990a) makes a case for the complementary nature of these two concepts. More recently though, Yukl and Lepsinger (2005) propose that leadership and management are interdependent and that their roles need to be integrated to achieve organisational effectiveness (Gleeson, 2016). In consonance with this view, Bedeian and Hunt (2006:190) put forward "the assumption that leadership is a subset of management, with both needing to be carried out to ensure organisational success". Mintzberg (2009) suggests that the manager has interpersonal roles and one of them is to be the leader. Further, some scholars use the terms management and leadership interchangeably (Walters, 2016) and argue that there is some degree of overlap between the two (Aruda, 2016). Yet others question the two concepts and admit the ongoing scholarly debate (Bolden, 2007; Buttigieg & West, 2013, Gleeson, 2016).

Kent (2005:1010) suggests that while there may be a need to define the two concepts independently to ensure clarity in academic debate and research, he argues that the two processes are essentially integrative in nature. More recently, an important analysis of 80 studies on the topics of management and leadership by Nienaber (2010) who considered the similarities and differences claimed in these two concepts. Nienaber (2010:670) concluded that the literature demonstrates that "leadership and management are inextricably interwoven". Gleeson (2016) agrees that substantial overlapping exists and that both leaders and managers are performing inter-related tasks continuously while leading and managing teams.

This debate about the relationship between management and leadership highlights the ideological, ambiguous and problematic nature of the managing and leading that managers consider themselves engaged in.

Are management and leadership all about nature or nurture?

This too is a long-standing debate that has been enduring since the management and leadership thinking originated. Although both management and leadership are strongly based in personal commitment (Biro, 2015), there are strong theoretical positions on the opposing views in management and leadership foundations regarding nature or nurture. The general consensus though possibly lies somewhere in the middle of this continuum – managers and leaders can be developed or nurtured, but they must also possess certain inherent characteristics to start with.

De Wit (2017:570) contends that not all managers have the requisite qualities to be effective leaders – "either by nature or nurture". In answering the key question whether management and leadership competence is innate or acquired, some historical researchers highlight the importance of 'nature', claiming that managers require certain unique personality traits to be effective as leaders (Tucker, 1968; House and Aditya, 1997; Biro, 2015). Other researchers of that time placed greater emphasis on 'nurture', contending that effective leadership behaviour can be developed through deliberate training and effort (Kotter, 1990b; Nanus, 1992; Mintzberg, 2009). These researchers, resultantly, argued that a combination of genetics and environmental factors interact to produce effective leadership behaviour. In yet another emerging perspective on the nature versus nurture contention, some theorists are beginning to further nuance the debate by suggesting that, in addition to personal characteristics ('nature'), a significant part of leadership development derives from the exposure and challenges experienced on the job and only a small part comes from the 'nurture' element of formal training. Known as the 'developmental school', theorists in this school of thought hold the view that management and leadership are essentially grounded in experience and exposure (Kakabadse & Kakabadse, 1999; Alvesson & Svenningson, 2003; Ayers, 2015).

However, it seems that these two schools of thought continue up to today. Here Dissanayake (2016) states that: "Good managers, like leaders, are made; not born"

while Anderson (2012) stands firm that leaders are born. Researchers at one of Ohio's leadership research centres, Edunote (2017), present even another scenario, namely that "Leaders are born, but managers are made".

Given the current competitive business environment, effective management and leadership are increasingly being regarded as the mainstay of organisational success. The strategy of developing such management and leadership is identifying candidates with certain innate personal characteristics (nature), focusing on their development through appropriate training and mentorship (nurture) but also being willing to give potential managers and leaders the responsibilities that invariably come with on-the-job experience.

RESEARCH METHODOLOGY

Literature base

This study used both a literature review and quantitative empirical analyses. The literature employed the previously identified management and leadership competencies (and their respective measuring criteria) (see Shaikh, Bisschoff & Botha, 2017) to develop a measuring model based on the methodology employed by other studies that succeeded to do so (Moolla, 2010; Naidoo & Botha, 2014; Imandin, 2014; Bester, 2016 and others). Here Imandin, Bisschoff and Botha (2015) developed seven steps to construct a model to measure employee engagement constructs successfully. These steps served as a guideline to develop the model to measure management and leadership competencies. Following the development of the model, this study then proceeds to measure the management and leadership competencies of business school educated managers.

Data collection

All executive MBA students of two selected private business schools served as the population. These schools are geographically servicing all areas of South Africa. The students attend study schools in Durban and Johannesburg. The study school held in June 2017 was used to collect the data in the classrooms. The students attending the classes were requested to complete the questionnaires. Participation was voluntary and anonymous. Trained research assistants, mostly lecturers of the business schools, distributed, assisted and collected the questionnaires. The

lecturers were specifically used to collect the data because they have, in addition to being well briefed about the research project, a good knowledge and understanding of academic research. A total of 385 questionnaires were distributed of which 362 completed and usable questionnaires were collected. Two questionnaires were unaccounted for while 21 were incomplete. These questionnaires were discarded because they could not be used. This resulted in an effective 94.0% response rate. The data were captured by the Statistical Consultation Services of the North-West University and analysed with the IBM Social Package for Social Sciences Version 24 (SPSS, 2017).

Ethical clearance

The study was classified as an ethically low-risk category study and ethically cleared by the Ethics Committee of the Faculty of Economic and Management Sciences at the North-West University. The low-risk category requires only approval, and no formal ethics number was issued.

Methodology to development of the model

The model to measure management and leadership competencies was developed through a set of seven steps proven to be successful and useful by some social science studies (Moolla 2010; Salim, 2013; Bisschoff & Moolla, 2014; Basson, 2014; Imandin, 2014). These steps (as formulated by Imandin et al., 2015) are:

Step 1:   Literature review on management and leadership competencies measurement

- Identify relevant management and leadership competencies.
- Confirm relevance and importance of competencies
- Compile a final list of management and leadership competencies

Step 2:   Purification of competencies

- Scrutinising and eliminating duplicate competencies
- Retain the more important competencies (based on application by researchers)

- Tabulate purified list of competencies and respective measuring criteria and their sources of origin

Step 3: Questionnaire development
- Convert purified table with the competencies and its measuring criteria into a questionnaire
- Formulate additional measuring criteria after if needed
- Test questionnaire in a focus group to ensure easy understanding and clear instructions)

Step 4: Validity and data collection
- Review questionnaire by expert(s)
- Perform content and face validity
- Ensure sample adequacy (KMO≥0.70)
- Determine sphericity (p≤0.05; Sig ≤0.005)

Step 5: Validate measuring criteria per competency
- Ensure the measuring criteria do measure the respective competency
- Measure the extent of measurement success (calculate variance explained; ≥0.50)
- Eliminate all non-valid criteria
- Present simplified model if criteria were eliminated
- Identify inter-competency correlations

Step 6: Reliability
- Determine competency reliability (Cronbach Alpha; α≥0.70)

Step 7: Refined model presentation
- Elimination of unreliable and invalid elements

RESULTS

A model to measure management and leadership competencies

After performing Steps 1 and 2 in model development, the final model has a total of eleven management and leadership competencies. Measuring criteria have also been identified for each of the competencies. The criteria and competencies are measurable; this resulted in the successful construction of the questionnaire (Step 3).

Steps 4, 5 and 6 require statistical proof. Here validating the measuring criteria of the respective management and leadership competencies, the sample adequacy, variance explained, and reliability requires calculation. Additionally, the analysis must confirm that the measuring criteria for each competency actually do measure that specific competency. Exploratory factor analysis is used to determine if these criteria all load onto the respective competency. This means that if the factor analysis extracts only one factor per competency, it implies that the relevant criteria measure one construct only; this is then the specific management and leadership competency (Field, 2009). This methodology was successfully applied in similar research settings by numerous researchers such as Kadé (2010), Salim (2014), Bisschoff and Moolla (2014), Fields (2015) and others. These authors also indicated that in the case where two factors are extracted, it means that the competency actually consists of two sub-competencies, hence not measuring one management and leadership competency. Alternatively, a criterion could also load poorly (factor loading ≤0.40) which will diminish its importance in the measurement of the competency. Low loadings lead to the omission of such a criterion from further analysis. The results of the sample adequacy, sphericity and reliability analyses appear in Table 1 while Table 2 shows the factor analysis and factor loadings per competency.

Table 2:   Management and leadership competencies suitability statistics

Competency	Sample adequacy	Sphericity	Reliability	Variance explained
Personal Value System	0.676	0.00	0.600	46.0%
Career Awareness	0.778	0.00	0.772	59.5%
Ethical and External Influences	0.718	0.00	0.694	52.5%
Leading Change	0.766	0.00	0.717	49.8%
Cultural Sensitivity	0.738	0.00	0.640	65.9%
Team Building	0.734	0.00	0.787	62.1%
Strategic Leadership	0.755	0.00	0.739	58.3%
Conflict Management	0.681	0.00	0.755	67.4%
Communication Skills	0.841	0.00	0.861	58.3%
Global Leadership Mindset	0.500	0.00	0.845	86.7%
Emotional Intelligence	0.794	0.00	0.856	70.2%

* Unreliable (0.57<α); ** Marginal reliability (0.57≤α<0.70); *** (α≥0.70) Reliable

The results show that all the competencies show satisfactory sample adequacy except the competency *Global leadership mindset*. Here the sample adequacy is marginal. A KMO value of 0.50 is still acceptable, although higher values exceeding 0.60 are preferable (Field, 2009). This favourable result indicates that each of the competencies are indeed measured by their respective criteria. Further, these results indicate that all but two competencies have satisfactory reliability coefficients (α≥0.70). These two competencies (*External and ethical influences* and *Personal value system*) exceeded the lower reliability coefficient set by Cortina (1993:101) (α≥0.57). How well each competence is measured by the criteria is indicated by the variance explained; this should ideally exceed 60%, although if 50% variance is explained, it is also regarded as acceptable. Here the competency *Personal Value System* shows 46% variance which is below the required 50%. Leading change is acceptable with its variance at 49.8%. This is marginally lower than 50%, but the competency shows excellent reliability. The competency is thus retained for measurement based on the supportive reliability coefficient. No simplification or reduction of measuring criteria could be done as the theoretical model proved to be statistically valid, and all the criteria do actually measure the competencies as indicated by the literature study.

The results then mean, in practice, that the model is suitable to measure the management and leadership competencies. It also means that the competencies and their respective criteria are deemed fit to perform this measurement.

From the analysis in Tables 1 and 2, the theoretical model could be statistically validated as a tool to measure management and leadership competencies. From Table 2, it is clear that the model's competencies do not break up into sub-competencies. This result substantiates that a thorough literature basis for the model was used.

Step 7 requires the presentation of the model. The model to measure management and leadership competencies is shown in Figure 1. The relevant competencies, its reliability and its variance explained are also indicated in the model.

Table 3 follows on next page

Table 3:   Factor analysis of individual managerial competence

Personal Value System	Factor loadings	Career Awareness	Factor loadings	Ethical and External Influences	Factor loadings
PVS2	0.776	CAW2	0.791	EEI3	0.744
PVS4	0.671	CAW3	0.786	EEI4	0.733
PVS1	0.649	CAW4	0.760	EEI1	0.713
PVS3	0.605	CAW1	0.749	EEI2	0.706
Leading Change	**Factor loadings**	**Communication Skills**	**Factor loadings**	**Strategic Leadership**	**Factor loadings**
LEC2A	0.803	COS4	0.819	STL3	0.824
LEC1	0.789	COS2	0.788	STL2	0.816
LEC3	0.778	COS5	0.782	STL1	0.803
LEC2	0.563	COS1	0.758	STL4	0.587
LEC4	0.548	COS3	0.662		
Conflict Management	**Factor loadings**	**Team Building**	**Factor loadings**	**Emotional Intelligence**	**Factor loadings**
COM2	0.856	TEB3	0.875	EMI3	0.878
COM1	0.805	TEB4	0.829	EMI4	0.863
COM3	0.800	TEB1	0.733	EMI2	0.816
		TEB2	0.703	EMI1	0.791
Cultural Sensitivity	**Factor loadings**	**Global Leadership Mindset**	**Factor loadings**		
CUS2	0.863	GLM2	0.931		
CUS1	0.854	GLM1	0.931		
CUS3	0.709				

The model to measure management and leadership competencies is shown in Figure 1.

Figure 4:   A model to measure management and leadership competencies
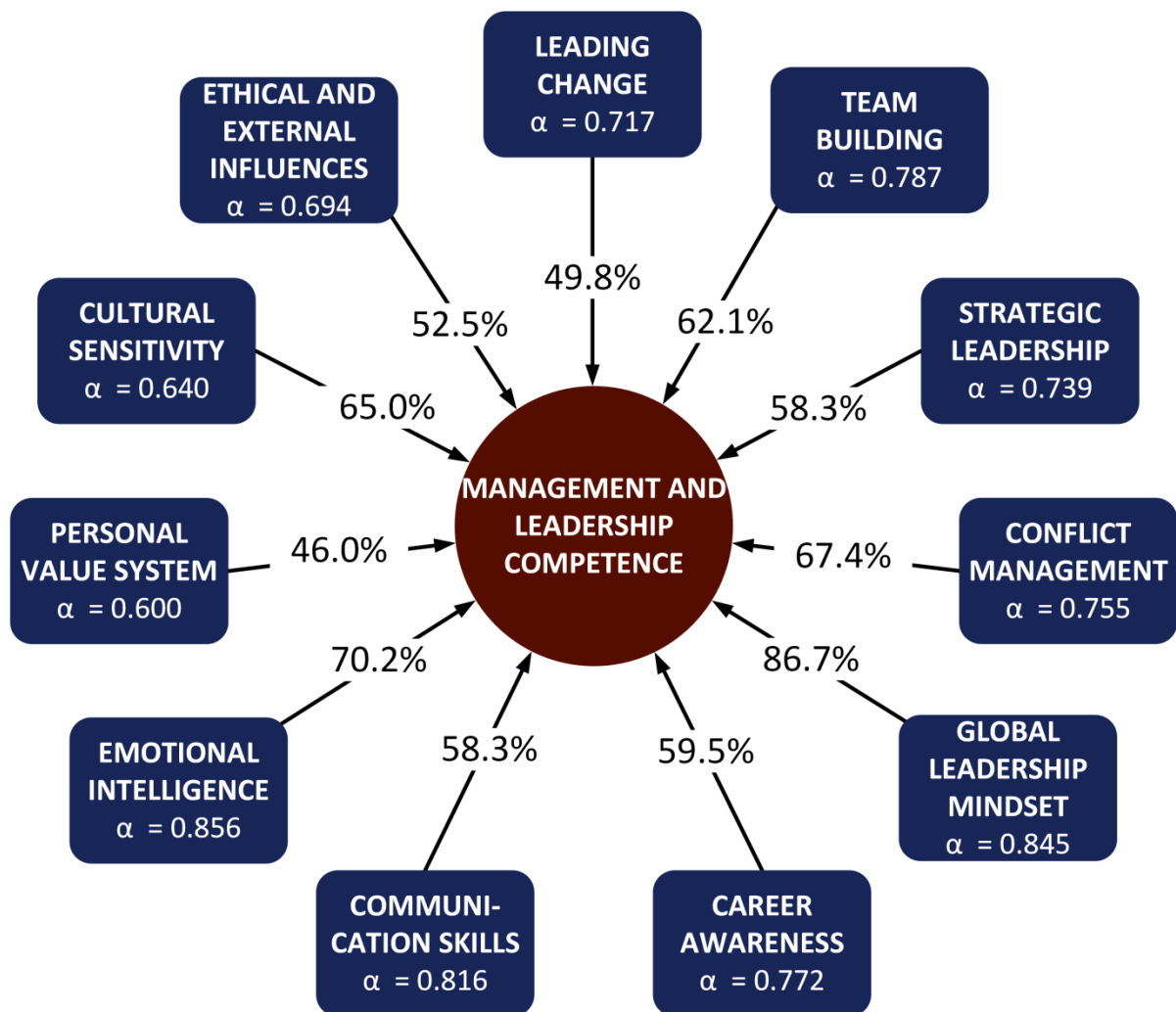
Figure 1 shows the competencies that measure management and leadership competencies; its variance explained and the reliability of each competency. The competency Global Leadership Mindset explains the most variance (86.7%) while also showing a high reliability coefficient (0.845). Inversely, Personal value system is the competency that explains the least variance (46.0%) and also has the lowest reliability coefficient of 0.600. This, however, does exceed the minimum reliability coefficient of 0.57 set in accordance with the guidelines by the seminal reliability study of Cortina (1993:102).

Demographic profile of respondents

The demographic profile of the respondents is shown in Table 3 below.

Table 4:   Demographic profile

Demographic variable	Percentage
Gender	
Male	50.4
Female	49.6
Age	
Less than 26 years	5.4
26-30 years	19.1
31-35 years	27.0
36-40 years	19.4
41-45 years	18.1
More than 45 years	11.1
Home language	
English	43.5
Afrikaans	3.0
isiZulu	26.7
Tswana	3.0
Sesotho	6.6
Other	17.1
Working experience	
Less than 1 year	1.1
1 to 2 years	3.5
More than 2 and up to 3 years	5.1
More than 3 and up to 5 years	12.5
More than 5 and up to 10 years	25.5
More than 10 years	52.3

Table 4:   Demographic profile (continued)

Education	
Diploma	17.4
Degree	39.1
Masters	29.6
MBA	7.6
Doctorate	4.9
Others	1.1
Do you manage people	
Yes	71.4
No	28.6
How long have you been managing people?	
Up to a year	12.5
Between 1 and 2 years	11.5
More than 2 and up to 3 years	9.9
More than 3 and up to 5 years	16.8
More than 5 and up to 10 years	25.7
More than 10 years	23.7
The biggest team you ever managed comprised how many people?	
Up to 5	19.7
Between 6 and 10	25.2
Between 11 and 15	14.8
Between 16 and 25	12.9
Between 26 and 35	6.8
More than 35	20.6

n=362

Measuring the management and leadership competencies

The data are captured on a structured 5-point Likert scale questionnaire, which was designed to measure the business school educated managers' management and leadership competencies. The scale to do so ranged from 1 (which represented the category "Totally disagree") to 5 (which indicated a response in the "Totally agree" category).

Inferential statistics were used, and the mean values and standard deviations were calculated to indicate the agreement, or not, to the importance of the required managerial and leadership competencies and their respective measuring criteria. The mean values were interpreted by using two indicators. Firstly, as an initial indicator, the mid-point indicated if a competency is important (thus scoring higher than the midpoint of three), or whether it is not (then scoring below the midpoint). This interpretation was developed by Fullerton (1993) and successfully applied globally in various management studies (see Fullerton & Neale 2008a; 2008b; Fullerton & Bisschoff, 2013; Bisschoff & Craven, 2010; Bisschoff & Fullerton, 2017). Secondly, the mean value was interpreted to provide more information on the required competency by providing a relative measure of importance or unimportance of a criterion or a competency. Here various managerial studies (such as Kadé, 2010; Thekiso, 2010; Salim 2012; Basson, 2014; Liebenberg 2016) successfully applied the guidelines to interpret the mean scores using the guidelines originally applied by Bisschoff and Hough (1995) where:

- Scores of 1.5 and lower indicate that the management and leadership competency is not a very important;
- Scores above 1.5 but below 3.5 indicate an important management and leadership competency;
- Scores of 3.5 and higher indicate a very important management and leadership competency; and
- Standard deviations of more than one indicate that the respondents do differ from one another, while deviations higher than 1.5 show that they differ a lot from one another on the importance of the criterion.

The measured scores of the competencies and their respective criteria appear in the table below.

Table 5:   Mean values and standard deviations of management and leadership competencies

CODE	CRITERIA	N	Mean	SDev
Personal value system		**371**	**2.58**	**0.653**
PVS01	I apply my own beliefs, values, ethics, knowledge and skills in my leadership style	371	1.50	.501
PVS02	Leadership behaviours are to be built on character as a foundation	363	2.77	1.887
PVS03	Ethical lapses in business are partly a result of character flaws of leaders	371	3.59	1.406
PVS04	The demonstration of solid character is going to be an indispensable quality of 21st century leaders	368	2.46	1.087
Career awareness		**369**	**3.18**	**0.578**
CAW01	I am aware that employees are required to have technical skills in the digital economy	369	4.15	1.152
CAW02	Lifelong learning is an essential feature of career development in the knowledge economy	353	1.29	.453
CAW03	Career planning is part of my self-development – rather than my employer's responsibility	304	4.03	1.702
CAW04	I am aware that even technical jobs require soft skills such as creativity, collaboration and business savvy	310	3.24	1.803
Ethical and external influences		**367**	**4.14**	**0.585**
EEI01	The public has higher expectations these days for the ethical behaviour of companies	365	4.17	.976
EEI02	MBA graduates are required to reflect greater ethical awareness – especially since the 2008 crisis	367	4.23	.921
EEI03	Leaders in business are regularly faced with ethical issues such as bribery, corruption, kickbacks for contracts among others	365	3.98	1.038
EEI04	Leaders must have a basic knowledge of ethical language and behaviours in their daily interactions	363	4.16	.925

Table 5: **Mean values and standard deviations of management and leadership competencies (continued)**

Leading change		**365**	**4.53**	**0.605**
LEC01	As a leader, I need to be prepared to help my organisation to keep pace with change	365	4.47	.796
LEC02	I believe that there is a relatively high level of failure in strategic change efforts in organisations	366	4.64	.715
LEC2A	As a leader, I need to drive the topic of change, be a change agent myself and promote diversity	363	4.55	.801
LEC03	MBA programmes must include a course on managing strategic change in the core curriculum	364	4.60	.696
LEC04	I believe that most managers do not embrace the reality of regular change in their organisations	365	4.37	.830
Cultural sensitivity		**366**	**4.42**	**0.697**
CUS01	Leaders with cultural understanding and sensitivity are better placed to leverage culture and use it to help accomplish organisational goals	366	4.24	.884
CUS02	I believe that cultural intelligence is a critical success factor of the leadership process and organisational transformation	365	4.51	.755
CUS03	Increased advances in ICT, the degree of cultural diversity is bound to increase pressure on organisational leaders	364	4.52	.733
Team building		**363**	**4.43**	**0.625**
TEB01	Team performance is a major determinant of the overall organisational performance	363	4.72	.611
TEB02	Business leaders of the 21st century are going to spend a greater portion of their time working in teams	363	4.01	.933
TEB03	I believe that leaders who are collaborative are most successful in their leadership efforts	363	4.49	.774
TEB04	Collaborative leaders generate goodwill in the team, which in turn enhances team performance	363	4.49	.781

Table 5: **Mean values and standard deviations of management and leadership competencies (continued)**

Strategic leadership		**361**	**4.18**	**0.615**
STL01	Strategic leadership focuses less on day-to-day events and more on underlying trends and patterns	360	4.07	.926
STL02	Strategic leadership has the potential to create a competitive advantage for an organisation which is hard for competitors to imitate	360	4.27	.855
STL03	Strategic leaders envision the future and inspire others to work towards creating a viable future for the organisation	361	4.24	.876
STL04	Strategic leadership is directly connected to organisational renewal and strategic innovation	361	4.15	.850
Conflict management		**361**	**4.37**	**0.663**
COM01	I must manage the gaps and tensions that emerge due to the diversity of my team members	360	4.45	.816
COM02	A leader's conflict management ability is key to the current business environment of diversity, complexity and continuous change.	361	4.21	.878
COM03	If I manage conflict poorly, business performance will suffer	358	4.46	.769
Communication skills		**361**	**4.39**	**0.663**
COS01	A leader's performance is closely tied to his/ her communication competence	361	4.44	.736
COS02	MBA degrees and business education programmes must include communication skills to improve graduates' impact in the workplace	358	4.16	.946
COS03	Leaders spend a substantial part of their time communicating with their constituents.	361	4.41	.747
COS04	Influencing others is central to leadership and this is achieved through effective communication	359	4.50	.709
COS05	Communication will increasingly become networked and matrix based across multidisciplinary teams	354	4.43	.791
Global mindset		**359**	**4.40**	**0.605**
GLM01	I understand the global mindset is the ability to see beyond national culture, organisational boundaries, and local business opportunities	359	4.38	.763
GLM02	The global leadership mindset is essential for success in the 21st century because it enables leaders to embrace paradox and complexity	357	4.42	.792

Table 5: **Mean values and standard deviations of management and leadership competencies (continued)**

Emotional intelligence		**358**	**4.39**	**0.662**
EMI01	I understand self-awareness to be a key part of emotional intelligence	356	4.49	.877
EMI02	I need to use empathy, intuition, emotions and emotional awareness in my leadership style	353	4.44	.771
EMI03	Emotional intelligence can result in outstanding performance at work.	358	4.46	.808
EMI04	If I am emotionally intelligent, I understand the impact that my emotions and behaviour would have on others around me.	357	4.20	.876

Almost all the competencies and their respective measuring criteria show high levels of importance (scoring a mean of higher than 3 or even 3.5). However, the mean values of the competency *Personal value system* are an exception. Three of the criteria scored below 3. This indicated that respondents do not regard applying one's own beliefs and values, leadership traits are built on character, and a solid leadership character is indispensable as important issues. These criteria all also have high standard deviations showing that all respondents are not in agreement on this competency. Interesting though is that the respondents do believe that ethics play an important part in a leader's personal value system. The competency thus has a low mean score of 2.58 indicating a low level of importance. The other competency that shows marginal importance is *Career awareness* with a mean (3.18) that is below the higher importance level of 3.5 but well above the lower margin of 3. The mean values of the competencies are shown in Figure 2 below.
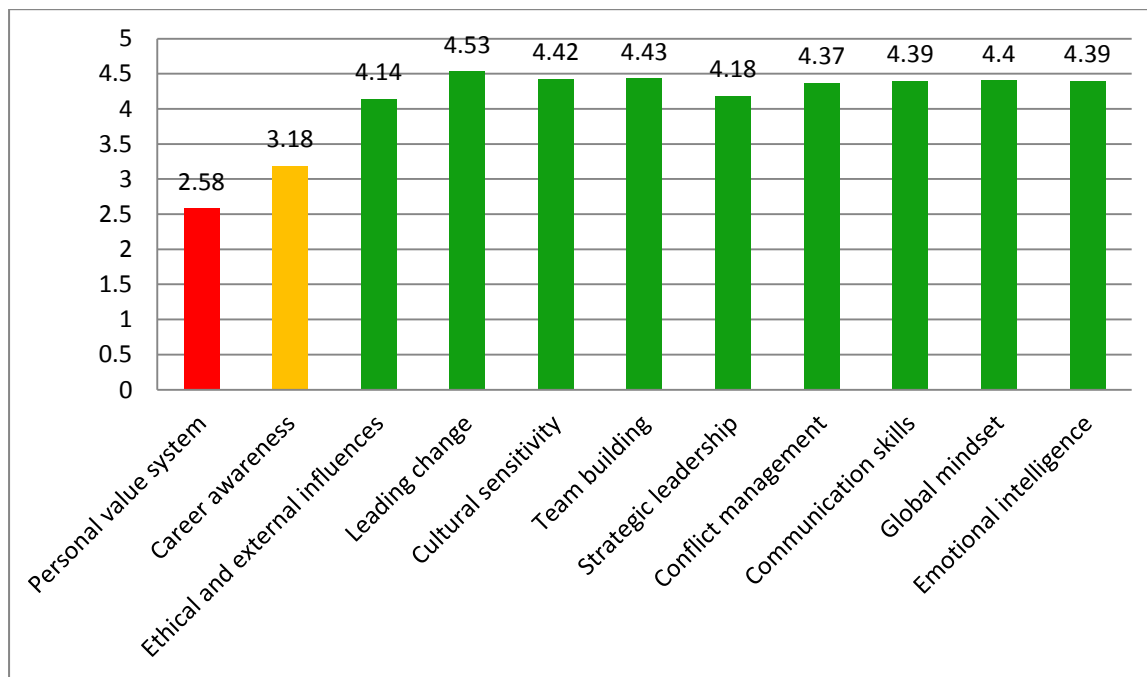
Figure 5:   Mean values of competencies

Correlational analysis

Pearson's correlation coefficient was used to determine if the demographic variables correlate significantly with any of the competencies. The analysis showed that although some significant correlations do exist, these correlations are very low ($p \leq 0.05$; $r \leq 0.2$). This means that, in practice, the demographic variables do not strongly influence on any of the competencies (Field, 2009:179). However, the correlations between the competencies were all significant and high ($p \leq 0.05$; $r \geq 0.5$). This means that the improvement in any competency has a large positive influence on all the other competencies; in practice, it implies that management and leadership competence levels achieve development synergy and as one skill improves, so do the others. This supports the theory consulted to identify competencies and indicates that all the competencies identified from the theoretical study are statistically inter-related and, in reality, do indeed measure only one construct; that of management and leadership competence.

CONCLUSIONS

Conclusions 1 and 2

This article used a scientifically-researched process proved to be successful and useful by some social science studies to successfully construct a model to measure management and

leadership competencies. The study further established the reliability of each competency, measured in total by 42 criteria.

- It is concluded that the study succeeded in developing a model to measure management and leadership competencies comprising eleven management and leadership competencies.
- Based on the conclusion above, it is also concluded that the development of a model allowed for the measurement of the management and leadership competencies of business school educated managers.

Conclusions 3 and 4

Following the identification of relevant management and leadership competencies from the literature, the relevance and importance of the competencies was confirmed. This study then proceeded to compile a final list of management and leadership competencies.

- It is concluded that the study was successful in scrutinising and eliminating duplicate competencies, thereby retaining the more important competencies.
- It is also concluded that the study was successful in presenting a refined model following the elimination of unreliable and invalid elements.

Conclusion 5 and 6

Having validated the measuring criteria of the respective management and leadership competencies, this study proceeded to calculate the sample adequacy; variance explained and reliability. Exploratory factor analysis was then used to determine if these criteria all load onto the respective competency.

- It is concluded that the study was successful in extracting only one factor per competency.
- It is further concluded that the relevant criteria measure one construct only; which was then regarded as the specific management and leadership competency.

Conclusions 7 and 8

The Pearson correlations identified significant but low, correlations between the demographic variables and the competencies, and also significant high correlations between the competencies. It can, therefore, be concluded that:

- In practice, no demographic variables have an influence on any of the competencies.
- All the competencies identified from the theoretical study are statistically inter-related and do influence one another;
- The competencies, in accordance with the literature, measures one core construct, namely that of management and leadership.

Conclusions 9 and 10:

The success of achieving satisfactory reliability and validity can be attributed to a high sample adequacy as measured by Kaiser-Meyer-Olkin (KMO). (This study had a KMO value of .933). Additionally, sphericity (as measured by Bartlett) measures if the data are suitable for factor analysis. Here the Chi-square for this study was 2997.081, the degree of freedom was 276, and the significance was below 0.05. The cumulative variance, as explained by the five factors, is also satisfactory at 56.5%. It is thus concluded that to develop or simplify a model successfully:

- An adequate sample is required;
- Sphericity is tested to ensure the data's suitability to be subjected to multivariate analysis;
- Satisfactory variance (>50%) should be explained by the model to claim success; and that
- Without these gatekeeper statistics, the attempts to develop or simplify a model are uncertain and prone to risk.

SUMMARY

This article focused on the actual measurement of management and leadership competencies amongst business school educated managers. The results showed that the typical profiles of the respondents in this sample are 31-40 years of age (although a fair age dispersion exists) and just over 50% of the respondents are male. A significant number of them have a degree or post-graduate qualifications and have been employed for more than five years. In fact, up to 78% were employed for more than five years.

This article thus presents a usable validated model to measure management and leadership competencies of managers and leaders. It also means that the competencies and their respective criteria are deemed fit to perform this measurement. Further, this model is relevant to managers as a managerial tool to be employed to measure the competencies of their executive teams.

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CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1   INTRODUCTION

This chapter is the final chapter of this study. Because this study has been written in the article format, this final chapter provides a summary of the entire study; short summaries of each of the four articles that resulted from this study are also provided.

The chapter also draws conclusions from the study and makes recommendations regarding its findings. Given the fact that the article format was used for this thesis, this allowed for conclusions and recommendations to be offered after each article concerning how the specific issues may be addressed using the results in each article. This means that the detailed conclusions and recommendations appear in each article; they are therefore not repeated here in the final chapter. As a result, the conclusions and recommendations offered in this chapter are generalised to the bigger study and seek not to be repetitive of the conclusions and recommendations presented in the individual articles. The conclusions drawn and the recommendations made are presented pairwise. This means that a recommendation about a specific conclusion is made to address that conclusion specifically; the numbering of the conclusions and recommendations are, therefore, related.

This chapter also identifies possible areas for future research and investigation that could result from this study. The chapter ends this study with a final summary.

6.2   OVERVIEW OF THE STUDY

The primary objective of this study was to develop a theoretical model to measure the level of skills for the managerial and leadership competence of business school educated managers. In doing so, the skills for managerial and leadership competence or constructs required identification. These constructs, as well as its measuring criteria, were identified from the literature. A multitude of factors have been examined during this study to identify and scientifically select the managerial and leadership competence factors. Following this, in-depth analyses on each of the constructs led to the identification of the measuring

criteria. The resultant theoretical model was then empirically validated through the use of appropriate statistical criteria. As a result, this study presents a usable validated model to measure the level of skills for the managerial and leadership competence of business school educated managers. The overview and contribution made by each of the articles follow.

Chapter 2: Article 1

The primary objective of this article was to empirically determine if the conceptual model(s) developed by Thekiso (2011) could be operationalised and used to measure the skills for managerial and leadership competence among managers studying at two private business schools in South Africa. The unambiguous finding is that the Thekiso model is not suitable to do so. The model seems to be specific to its sample. This is statistically confirmed by the many factors possessing low reliability coefficients. The second attempt by Thekiso (2011) to develop a revised model also did not show promise towards generalisation and operationalisation of the model either. The fact that this article rendered different results and factors also indicates that the revised model did not succeed in its initial aims to become a generalised model for use in different application settings. The model, however, did render a satisfactory analysis of its specific application at a public university's business school and went a long way to measure the skills for managerial competencies in that specific application setting (explaining a cumulative variance of 69.56%).

This article further indicated that a model developed by Shaikh (2013) to measure skills for managerial and leadership competence is still not achieved in a generalised application setting. Although this model shows good reliability, there is a problem with its low total variance explained (37.82%). This means that the model does not sufficiently measure the skills for managerial and leadership competence with the measuring criteria employed. As a result, it would seem that the questionnaire developed by Thekiso (2011) with its seven skills for managerial competency is not succeeding to efficiently measure the managerial skills. This means that further research should be aimed at the questionnaire and its measuring criteria. The results obtained by Thekiso, and also in this article, have already discarded a number of measuring criteria and have also identified other criteria to be important ones to retain in future research on skills for managerial competence.

The results from this study are satisfactory in that it goes beyond subjecting managers to existing generic managerial competency frameworks and attempts to build a new model to measure managerial and leadership competence of business school educated managers, based on empirical data. Although it is not a generic model that can be applied in different settings, it does provide a clear scientific base from which further development and refinement can take place.

Chapter 3: Article 2

This article started with an existing theoretical model to measure the level of skills for managerial and leadership competence of business school educated managers. The model presented by Shaikh (2013) was an adapted theoretical model based on a conceptual model originally presented by Thekiso (2011).

The Shaikh model reflected a fundamentally different factor and sub-factor structure to the conceptual model by Thekiso (2011). Further, it succeeded to progress in the right direction by overcoming failures experienced by Thekiso. However, the key shortcoming is the variance explained that falls considerably short of the desired 60%. At the posited 37% of the variance explained, it means that 63% of the variance is not explained; this is unsatisfactory. This meant that the model had to be extended and 'modernised' to reflect the latest developments and factors of managerial and leadership competencies related to the current dynamic of a complex global business environment.

In extending the current model to measure managerial and leadership competence more comprehensively, seven competencies were retained from the existing Shaikh model. One competency was discarded because it showed a lack of supportive evidence from the theory. Also, and based on an extensive literature review, another nine competencies were added. These new competencies sought to accommodate the key elements of managerial and leadership skills that were missing from the original theoretical model by Shaikh (2013). Although there are 16 skills in total, the new set of competencies embeds some of the original competencies. This means the model now has eleven managerial competencies to measure, each with its unique set of measuring criteria.

Chapter 4: Article 3

In this article, the latent variables or factors to measure management and leadership competencies have been identified and modelled. The article used exploratory factor analysis to identify latent variables. This article also rendered a verdict on the validity of the model as a higher objective of model development. In total 385 questionnaires using a five-point Likert scale were independently administered to business school educated managers; 94% of them responded. Exploratory factor analysis identified five factors explaining a cumulative variance of 56.5%. These are *Leadership skills, Managerial challenges, Emotional intelligence, Personal value system, and Cultural sensitivity*. Measuring criteria with low factor loadings or those with high dual-loadings were eliminated in the purification of the measuring criteria. The data has a high reliability coefficient of 0.947 while the constructs also adhered to the validity requirements.

Regarding the validity, the model proved to be valid in all except the future validity requirements. This cannot yet be determined, and future research should be employed to ensure the model can predict management and leadership competencies accurately. As a result, the article presents a usable validated model to measure management and leadership competencies of managers and leaders. The model also provides a solid theoretical basis for academia in their future managerial competency-related research projects. The model is, therefore, suitable to measure the current levels of managerial and leadership competence of business school educated managers. The last article of this study performs this measurement to provide a snapshot in time of competencies of South African managers.

Chapter 5: Article 4

This article focused on the actual measurement of management and leadership competencies amongst business school educated managers. It undertakes a review of the literature on general management and leadership, thereby establishing a broad theoretical framework to guide the study. After statistically determining the respective theoretical measuring criteria for the specific management and leadership competencies, the article presents a model to measure the level of skills for managerial and leadership competencies. The final model has a total of eleven management and leadership competencies. These are *Personal Value System, Career Awareness, Ethical and External Influences, Leading*

Change, Cultural Sensitivity, Team Building, Strategic Leadership, Conflict Management, Communication Skills, Global Leadership Mindset and *Emotional Intelligence.* This article also seeks to determine if the demographic variables influence the management and leadership competencies in any way.

This article presents the results of measurement of the level of skills for managerial and leadership competence of South African business school educated managers. It also reflects that the competencies and their respective criteria are deemed fit to perform this measurement. Further, this model is relevant to managers and can be used as a managerial tool to measure the competencies of their executive teams.

6.3   AN INTEGRATED MODEL TO MEASURE MANAGEMENT AND LEADERSHIP COMPETENCIES

The model in this study was developed step-wise. The articles, as indicated above (see Section 6.2), culminated in the final model to measure management and leadership competence of business school educated managers in South Africa. The model consists of management and leadership competencies identified by the literature study and retained after empirical scrutiny and of latent competencies identified by exploratory factors analysis. The model is shown in Figure 6.1.
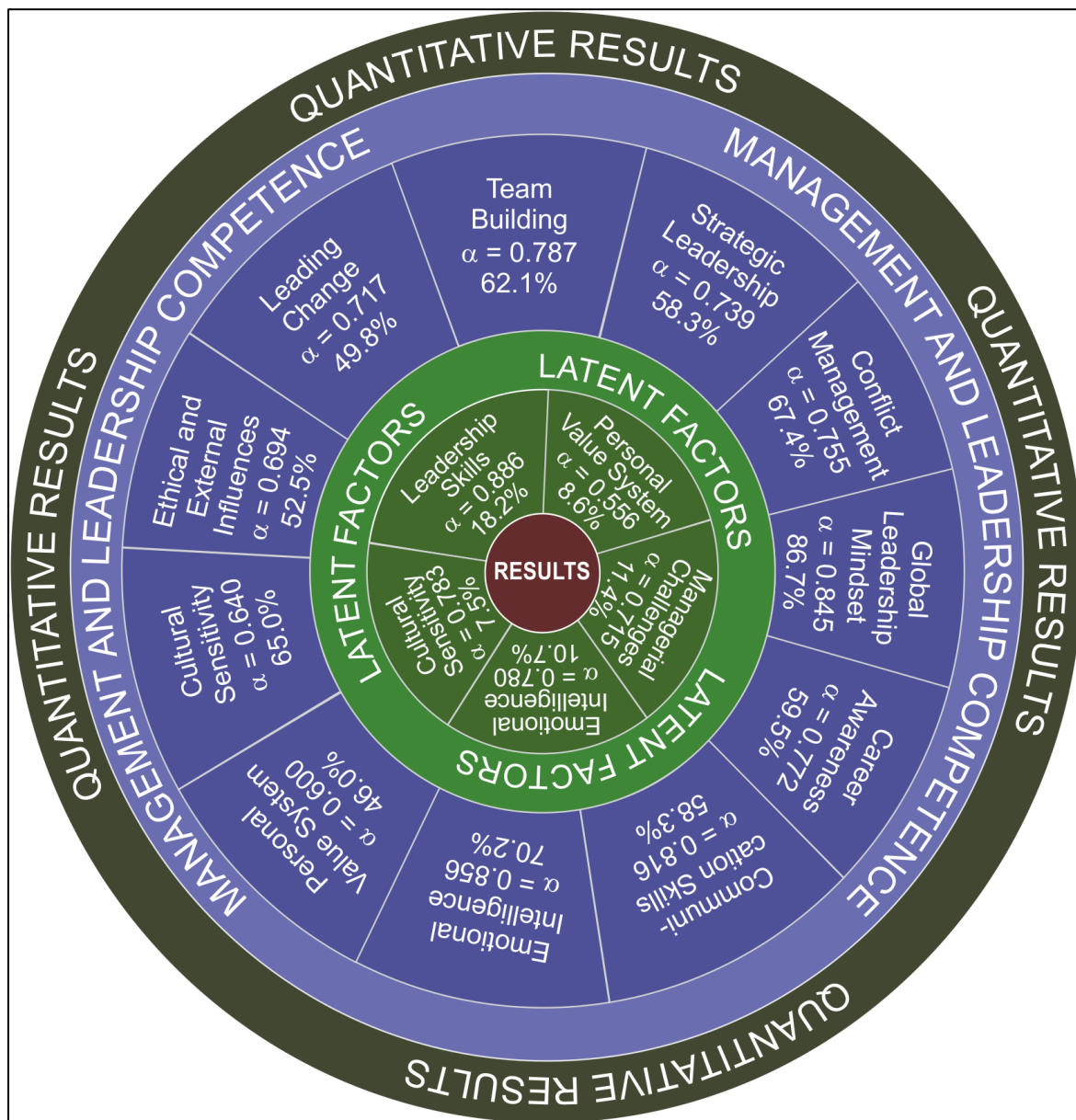
Figure 6.1: An integrated model to measure management and leadership competencies

The model was developed after scrutiny of two existing exploratory models that attempted measuring managerial competence. After weighing and finding these models too light, additional literature research to further identify managerial competencies and relevant measuring criteria then formed the basis of the model. The analysis used quantitative data to first evaluate the competencies and also their respective measuring criteria. In Figure 6.1 it is noted that eleven competencies were identified, evaluated and then used to measure the respective competencies of business school educated managers. However, a

second tier of competencies also exist. These are the latent competencies (or factors) that these managers possess. The model identified five latent competencies which explain 56.5% of the cumulative variance. These latent competencies are measured by 25 measuring criteria. The model is reliable. Almost all of the Cronbach Alpha coefficients of the literature based competencies and the latent competencies are high and exceed the required 0.70 level of reliability. The three literature based competencies that do not comply with high reliability ($\alpha \geq 0.70$), all show acceptable reliability coefficients ($\alpha \geq 0.57$) (Cortina, 1993; Field, 2009). This is good as it means that the model variables are expected to represent themselves in repetitive studies of a similar nature (Gaskin, 2014).

The model shows that modern managers and leaders operating in the fast-changing Fourth Industrial Revolution deem a Global leadership mindset, as the most important competency (exceeding the 80% level of importance) to successfully manage and lead modern organisations. *Emotional intelligence* is regarded to be the next most important competency (exceeding the 70% level of importance) while *Cultural sensitivity* and *Teambuilding* are regarded to be important (exceeding the 60% level of importance). Surprisingly, a *Personal value system* is regarded to be less important competency (falling below the 50% level of importance). Regarding the latent competencies, *Leadership skills,* followed by *Managerial skills*, are the two most important competencies.

It is important that management and leadership competencies are also considered in terms of the latent competencies identified in the model. This is because latent competencies are often not clear, nor are they easily identifiable in the workplace although they play an important role in the competence level of the managers or leaders. The model provides a practical guideline for top managers and executive leaders to use in assessing the competence of their organisations' managerial and leadership teams; this could be helpful to remain competitive in the demanding business environment presented by the Fourth Industrial Revolution.

6.4   CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations that follow are framed in such a manner that the sets of recommendations follow from each set of conclusions numerically. This means that, for example, *Recommendation 1* would pertain to the conclusion(s) drawn in *Conclusion 1.*

Further, the specific conclusions and recommendations were presented at the end of each article, and as such, are not repeated in this chapter. Thus, only additional and generalised conclusions and recommendations are reported in this chapter.

6.4.1 Research Methodology

The conclusions and recommendations about the research methodology and statistical analysis used in the study are addressed below.

Conclusion 1:

The undertaking of a sound literature study that is current and coherently produced provides a solid foundation for the development and execution of the rest of the study. The strong literature basis of this study allowed for an in-depth understanding of the research problem and provided a rigorous theoretical framework for the empirical study to measure the level of skills for managerial and leadership competence of business school educated managers. The literature review of this study also ensured that very recent concepts and constructs of managerial and leadership competencies, particularly in the context of the digital economy and the Fourth Industrial Revolution, were identified. It is therefore concluded that this sound theoretical underpinning ensured the required quality and rigour, as a basis for this study, has been achieved.

Recommendation 1:

It is recommended that future researchers adopt this methodology of grounding the study in a strong literature base and theoretical framework. This recommendation extends beyond the field of measuring skills for managerial and leadership competence – to include other fields of study as well.

Conclusion 2:

In addition to Conclusion 1, the sound literature study proved to be very valuable in the construction of the measuring instrument by identifying the contemporary management and leadership competencies as well as identifying the respective measuring criteria of the competencies. It can, therefore, be concluded that the strong literature orientation of this study allowed for the development of a sound and valid questionnaire for empirical research.

Recommendation 2:

It is strongly recommended that a sound theoretical framework form the mainstay in the construction of the measuring instrument. This is especially useful where no existing research instruments are readily available for direct use or where researchers wish to construct specialised questionnaires. The theoretical underpinning of the study thus strengthens the validity and builds on the success of previous researchers in the field in a sound and scientifically rigorous way.

Conclusion 3:

The statistical analyses employed in this study served the objectives of this study well. The use of the statistical analysis programme (SPSS Version 24) and consultation with a statistical specialist at North-West University ensured the integrity of the empirical results and sound interpretation of the results. The statistical techniques and methodology used also allowed the study to simplify the model to measure managerial and leadership competencies scientifically.

More specifically, the empirical analyses consisted of:

1. The Kaiser-Meyer-Olkin (KMO) of sample adequacy proved that the data collected in this study was sufficient and that it is suitable for multivariate statistics such as exploratory factor analysis to be undertaken. The success of simplifying the model and achieving satisfactory reliability and validity measures achieved in this study can be attributed to the high KMO values (0.933).
2. Bartlett's test of sphericity, as identified for this study, was deemed suitable for this study with all values below the maximum value of 0.05. This indicated that the data were indeed suitable for performing the multivariate statistical analysis.
3. Cronbach Alpha coefficients were calculated for each of the constructs and indicated a high degree of reliability of the data employed in the measuring instrument. This indicates that the results were reliable and appropriate to use in similar future studies.
4. Exploratory Factor Analysis was used to validate the measuring criteria of the managerial and leadership competence constructs as well as to identify and simplify the factors within the model.

5. Pearson Correlation Coefficients identified high correlation coefficients between all the individual factors (latent variables).

Based on the empirical analysis of the data in this study, it can thus be concluded that the:

1. Questionnaire employed was valid;

2. Data analysed was reliable;

3. Sample was statistically adequate to use for analysis;

4. Data were suitable for multivariate analysis due to satisfactory low sphericity coefficients; and that

5. This leads to the conclusion that all the factors are related and deal with one core issue, namely that of managerial competence.

Recommendation 3:

Given the empirical results and following from Conclusion 3, it is recommended that researchers:

1. Employ a professional statistician to assist them in the selection of the appropriate statistical techniques;

2. Use the professional assistance of such a statistician to correctly analyse the data and to provide assistance in the interpretation of the results to ensure correctness thereof;

3. Analyse the data using a specialised statistical software package proficient for analysis of the data at an advanced level; and

4. Have the statistician check the final copy of the study to ensure that the results are correctly recorded and applied in the conclusions and resulting recommendations.

It is also recommended that the methodology employed in this study could be duplicated in other studies of a similar nature. This is however contingent on compliance with the three preceding recommendations above.

6.4.2 Results

The conclusions and recommendations about the results of this study are addressed below.

Conclusion 4 (Article 1):

The results of this study showed that the conceptual model by Thekiso (2011) with its seven skills to measure managerial competence, could not be applied and proved as a valid model in another similar application setting. Further, the empirical study that was undertaken by Shaikh (2013) also did not proceed to develop a model to measure the competence of business school education managers in a generalised application setting. Although the Shaikh model showed good reliability, the low total cumulative variance of 37.82% in Shaikh's study indicated that the model does not sufficiently measure the skills for managerial competence.

Based on the results of studies by both Thekiso (2011) and Shaikh (2013), it can, therefore, be concluded that further research is required to extend and 'modernise' the model to reflect the latest dynamics and factors of managerial and leadership competencies related to the current complex global business environment. More particularly, the design and development of the questionnaire and its measuring criteria are to be refined to develop a generic and operational model (This was the key driver of further research and investigation later on in this study; a new set of competencies were then developed in the second article).

Recommendation 4 (Article 1):

It was recommended that a detailed literature review be undertaken to scientifically identify further constructs and skills required for managerial competence. More specifically, the design and development of the questionnaire and their measuring criteria are to be further refined using contemporary literature and scientifically sound methods (This recommendation led to Article 2 where the new competencies and measuring criteria were developed).

Conclusion 5 (Article 2):

The managerial competencies identified by the Thekiso (2011) and Shaikh (2013) models were augmented by an extended, thorough study of recent literature. After removing five overlapping competencies from a potential of sixteen, this led to a new model, comprising eleven core managerial and leadership competencies, each with their respective measuring criteria (42 measuring criteria) being extrapolated from the theoretical study.

These new competencies sought to accommodate the key elements of managerial and leadership skills that were missing from the original model by Shaikh (2013).

It is therefore concluded that this new model of eleven core competencies can serve as the empirical structure of a measuring instrument, a new questionnaire, that is to be used to measure managerial and leadership competencies.

Recommendation 5 (Article 2):

It was recommended that:

1   Further research is undertaken to substantiate these eleven core competencies as valid measures of managerial competence. More specifically, a new questionnaire is developed using the eleven core competencies and the respective measuring criteria; and that

2   The criteria and competencies be empirically scrutinised to ensure its worth before employing the model as managerial tool (as it was done in Article 3)

This model can only then be used to measure managerial and leadership competencies.

Conclusion 6 (Article 3):

This study was also able to scientifically reduce the eleven core competencies to more manageable five factors, measured by 25 criteria (thereby reducing the measuring criteria by 17). It is thus concluded that the study succeeded to simplify the model to measure management and leadership competencies significantly and that this model is of practical value to managers and leaders.

Based on the conclusion above, it is also concluded that the simplification of the model now enables an easier operationalisation of the model in the industry, thus putting academic research to use in practice.

Recommendation 6:

Given that this article presents a usable validated model to measure management and leadership competencies, it is therefore recommended that the model is used as a:

1.   Managerial tool to measure the competencies of managerial or leadership staff.

2. Tool to plan and assess the needs and effectiveness of managerial and leadership training and development initiatives.

3. Solid theoretical basis by researchers and theoreticians in their future managerial competency-related research projects.

6.5 AREAS FOR FUTURE RESEARCH

The following broad areas for future research have been identified:

- An in-depth analysis of any or all of the five factors of the model to measure management and leadership competencies identified in this study could be worthy of further investigation.

- While this study did not show any meaningful correlations between the management competencies and demographic variables, studies to further investigate whether management competencies could potentially be influenced by demographic variables would be of significant value to academia.

- A study on whether management competencies vary significantly between male and female managers.

- In line with studies by Shavelson (2013), it would be interesting to investigate whether scientifically measurable levels of threshold performance could be established above which a manager could be deemed to be competent.

- A study of management competencies with a specific international comparative focus where South African business school educated managers are compared to similar managers in other countries could be very interesting, especially given the current dynamic of the digital economy and that South African managers are required to work across multiple geographies.

6.6   SUMMARY

The overall contribution of the study resulted in the development of a conceptual model to measure the level of skills for the managerial and leadership competence of business school educated managers in South Africa. This was the primary objective of the study, and accordingly, the study reached its objectives.

This final chapter highlighted the four articles through a summary of each, showing the coherent development of the study. In addition to the conclusions and recommendations offered in the individual articles, this chapter provided further generalised conclusions and the related recommendations.

As this study documents a conceptual model to measure managerial and leadership competencies of business school educated managers, the findings and outcomes of this study move closer to being able to shape, inform and refine future research and investigation into studies looking for scientifically sound competency models to measure competencies for managerial effectiveness.

It is also hoped that this study, and further research in this area, will help organisations and researchers identify potentially competent managers and leaders, understand how they should be developed with more exacting strategies, but also begin to grasp how the critical human capital and talent needs of the not-too-distant future digital era may be addressed.

Based on the notion advanced by many scholars that development of managerial skills and competencies is a continuous and lifelong process, this study concludes with a position that management education sets in motion a learning process for advancing managerial competencies while preparing business school graduates with learning tools that support development beyond graduation. It is this variable and lifelong dynamic of development that reflects the shifting sands of competency requirements and the roles of managers and leaders in the context of business in the 21st century.

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APPENDIX A: QUESTIONNAIRE

RESEARCH QUESTIONNAIRE TO DETERMINE SKILLS FOR MANAGERIAL COMPETENCE

Section A: Demographics

*Kindly cross (X) the appropriate box

1	Gender	Male	Female			

2	Home language	English	Afrikaans	Zulu	Tswana	Sotho	Other

3	Age between	<26	26 – 30	31 -35	36 – 40	41 -45	45+

4	Highest qualification currently	Diploma or equivalent	B.Degree or equivalent	Honours Degree or Postgraduate Diploma	Masters Degree	MBA Degree	Doctoral Degree

5	Working experience	<1 Year	Between 1 year and 2 years	Between 2 years and 3 years	Between 3 years and 5 years	Between 5 years and 10 years	Over 10 years

6	Do you manage people?	Yes	No			

7.1	How long have you been managing people?	<1 Year	Between 1 year and 2 years	Between 2 years and 3 years	Between 3 years and 5 years	Between 5 years and 10 years	Over 10 years

7.2	The biggest team you ever managed comprised how many people?	Between 1 – 5	Between 6 -10	Between 11 - 15	Between 16 - 25	Between 26 – 35	Between 36+

Section B: choose your response based on the following scale

1 = Totally Disagree	2 = Partially Disagree	3 = Do Not Know
4 = Partially Agree	5 = Totally Agree	

*CIRCLE your response as per the scale above

		Totally Disagree				Totally Agree
PVS01	I apply my own beliefs, values, ethics, knowledge and skills in my leadership style	1	2	3	4	5
PVS02	Leadership behaviours are to be built on character as a foundation	1	2	3	4	5
PVS03	Ethical lapses in business are partly a result of character flaws of leaders	1	2	3	4	5
PVS04	The demonstration of solid character is going to be an indispensable quality of 21st century leaders	1	2	3	4	5
CAW01	I am aware that employees are required to have technical skills in the digital economy	1	2	3	4	5
CAW02	Lifelong learning is an essential feature of career development in the knowledge economy	1	2	3	4	5
CAW03	Career planning is part of my self-development – rather than my employer's responsibility	1	2	3	4	5
CAW04	I am aware that even technical jobs require soft skills such as creativity, collaboration and business savvy	1	2	3	4	5
EEI01	The public has higher expectations these days for the ethical behaviour of companies	1	2	3	4	5
EEI02	MBA graduates are required to reflect greater ethical awareness – especially since the 2008 crisis	1	2	3	4	5
EEI03	Leaders in business are regularly faced with ethical issues such as bribery, corruption, kickbacks for contracts among others	1	2	3	4	5
EEI04	leaders must have a basic knowledge of ethical language and behaviours in their daily interactions	1	2	3	4	5
LEC01	As a leader, I need to be prepared to help my organisation to keep pace with change	1	2	3	4	5
LEC02	I believe that there is a relatively high level of failure in strategic change efforts in organisations	1	2	3	4	5
LEC02A	As a leader, I need to drive the topic of change, be a change agent myself and promote diversity	1	2	3	4	5

LEC03	MBA programmes must include a course on managing strategic change in the core curriculum	1	2	3	4	5
LEC04	I believe that most managers do not embrace the reality of regular change in their organisations	1	2	3	4	5
CUS01	Leaders with cultural understanding and sensitivity are better placed to leverage culture and use it to help accomplish organisational goals	1	2	3	4	5
CUS02	I believe that cultural intelligence is a critical success factor of the leadership process and organisational transformation	1	2	3	4	5
CUS03	Increased advances in ICT, the degree of cultural diversity is bound to increase pressure on organisational leaders	1	2	3	4	5
TEB01	Team performance is a major determinant of the overall organisational performance	1	2	3	4	5
TEB02	Business leaders of the 21st century are going to spend a greater portion of their time working in teams	1	2	3	4	5
TEB03	I believe that leaders who are collaborative are most successful in their leadership efforts	1	2	3	4	5
TEB04	Collaborative leaders generate goodwill in the team, which in turn enhances team performance	1	2	3	4	5
STL01	Strategic leadership focuses less on day-to-day events and more on underlying trends and patterns	1	2	3	4	5
STL02	Strategic leadership has the potential to create a competitive advantage for an organisation which is hard for competitors to imitate	1	2	3	4	5
STL03	Strategic leaders envision the future and inspire others to work towards creating a viable future for the organisation	1	2	3	4	5
STL04	Strategic leadership is directly connected to organisational renewal and strategic innovation	1	2	3	4	5
COM01	I must manage the gaps and tensions that emerge due to the diversity of my team members	1	2	3	4	5
COM02	A leader's conflict management ability is key to the current business environment of diversity, complexity and continuous change.	1	2	3	4	5
COM03	If I manage conflict poorly, business performance will suffer	1	2	3	4	5
COS01	A leader's performance is closely tied to his/ her communication competence	1	2	3	4	5
COS02	MBA degrees and business education programmes must include communication skills to improve graduates' impact in the workplace.	1	2	3	4	5
COS03	Leaders spend a substantial part of their time communicating with their constituents.	1	2	3	4	5

		1	2	3	4	5
COS04	Influencing others is central to leadership and this is achieved through effective communication.	1	2	3	4	5
COS05	Communication will increasingly become networked and matrix based across multidisciplinary teams	1	2	3	4	5
GLM01	I understand the global mindset is the ability to see beyond national culture, organisational boundaries, and local business opportunities.	1	2	3	4	5
GLM02	The global leadership mindset is essential for success in the 21st century because it enables leaders to embrace paradox and complexity	1	2	3	4	5
EMI01	I understand self-awareness to be a key part of emotional intelligence	1	2	3	4	5
EMI02	I need to use empathy, intuition, emotions and emotional awareness in my leadership style	1	2	3	4	5
EMI03	Emotional intelligence can result in outstanding performance at work.	1	2	3	4	5
EMI04	If I am emotionally intelligent, I understand the impact that my emotions and behaviour would have on others around me.	1	2	3	4	5

Thank you for taking the time to complete this questionnaire.

APPENDIX B: LETTER FROM LANGUAGE EDITOR

Dynamic Language & Translation Specialists

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Tuesday, 07 November 2017

To whom it may concern,

Re: Letter of confirmation of language editing

The thesis **A conceptual model to measure the level of skills for managerial competence of business school-educated managers in South Africa by A.S.C. Shaikh** was language edited. The referencing and sources adhere to NWU guidelines. Final corrections remain the responsibility of the author.

Antoinette Bisschoff

Officially approved language editor of the NWU since 1998
Member of SA Translators Institute (no. 100181)

Precision ... to the last letter