

**The divergence between research and practice in management
sciences and its impact on employee selection methods in
South African technology firms**

A research project submitted to the Gordon Institute of Business Science,
University of Pretoria, in partial fulfilment of the requirements for the degree of
Master of Business Administration

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ABSTRACT

The dawn of the knowledge era has brought with it increasing competition for high-calibre knowledge workers, making employee selection one of the most important decisions a firm can make. Research indicates that firms making use of effective employee selection methods with increased predictive validity of future job performance have a higher probability of employing employees that will have higher job performance and a superior ability to adapt to this changing environment.

Comprehensive research has highlighted that some employee selection methods are more accurate at predicting future job performance than others. Similar studies conducted in the field of management sciences have indicated that practitioners are not heeding what academics are advising, resulting in a research-practice gap.

This quantitative study, by way of online surveys, gained access to line managers and HCM practitioners in five South African technology firms. This study set out to investigate the possible existence of a divergence between research and practice in the use of employee selection methods in these firms.

The results of this study indicate that a divergence does exist between the perceived validity respondents place on employee selection methods and those that are research-proven. Respondents might be suffering from the “bounded rationality” model of decision making. This study offers evidence-based-management as a possible solution to address this divergence.

KEY WORDS

Management Sciences, Employee Selection, Knowledge Worker, Research-Practice Gap, Evidence-based Management

DECLARATION

I declare that this research project is my own work.

It is submitted in partial fulfilment of the requirements for the degree of Masters of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University.

I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Student name: Armand van der Merwe



Date: 7 November 2018

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1. INTRODUCTION TO RESEARCH PROBLEM

1.1. Research title

The divergence between research and practice in management sciences and its impact on employee selection methods in South African technology firms.

1.2. Research problem

Regardless of the type of organization, it is generally accepted that an employer's success is closely tied to the calibre of individuals it employs (Dineen & Soltis, 2011). Research has linked effective employee selection with a firm's ability to achieve its strategic objectives and manage future challenges (Bolander & Sandberg, 2013). Research also indicates that firms making use of hiring methods with increased predictive validity of future job performance enjoy "substantial increases in employee performance as measured in percentage increase in output, increased monetary value of output and increased learning of job-related skills" (Schmidt & Hunter, 1998, p.262).

The dawn of the knowledge era has brought with it increasing competition for high-calibre knowledge workers, making recruitment and selection some of the most important decisions a firm can make (Kim & Ployhart, 2018). In addition, the knowledge era combined with the dawn of industry 4.0 has brought with it increased mobility of knowledge workers, leading to higher levels of recruitment and selection (Sutherland & Wöcke, 2011; Wright, Tartari, Huang, Di Lorenzo, & Bercovitz, 2018).

According to 2014 figures from Statistics South Africa, the information communication and technology (ICT) sector overtook agriculture in 2014 as the ninth largest employer in South Africa. These statistics do however not indicate the magnitude of the global shift to the knowledge era. "Consider the automobile, the icon of the 'old' Fordist, manufacturing economy. A new car today is less and less the product of metal fabrication and more a smart machine that uses computer technology to integrate safety, emissions, entertainment, and performance" (Powell & Snellman, 2004, p.201).

It is clear that the knowledge economy is changing the nature of businesses not only for traditional technology clusters but also businesses outside them. Researchers are warning firms who depend on knowledge workers that they will increasingly find themselves competing for the same scarce human resources in future (Schnake, 2016).

In order to remain competitive, firms must discover means of leveraging their human

capital just as they have found means of leveraging other capital investments (O’Leary, Lindholm, Whitford, & Freeman, 2002). In light of this statement, it makes good business sense to make a sound initial investment in human capital through investing in effective employee selection methods.

Despite its importance, existing research has paid little attention to the perceived usefulness of selection methods utilised in today’s businesses by those tasked with this function. Even with comprehensive meta-analytic studies conducted on the selection methods most likely to predict future job performance, practitioners it would seem, are either not in touch with recent research or overly concerned with implementing what it suggests.

In economic terms, the use of high-validity selection methods can have a significant impact on a firm’s profitability. In an ultra-competitive, increasingly global and highly-digitised knowledge economy, firms could unknowingly be creating competitive disadvantages themselves by not heeding what contemporary meta-analytic research is advising. Academics argue that they have sound research-based evidence for business to consider in practice. Practitioners, it would seem, are not paying much attention to their advice (Judge & Zapata, 2015).

Some scholars suggest that for some time now, researchers in the field of academic management have been losing ground to management consultants as the preferred sources of ideas and advice for practice (Rynes, Giluk, & Brown, 2007; Kieser, Nicolai, & Seidl, 2015). This lost ground is to the detriment of both parties as firms have an increasing need for more effective and sustainable organisations and academics are increasingly becoming dependent on practitioner resources. Some scholars have raised their concern that academics failure to “matter more” is reaching a concerning level, especially in the field of management sciences (Birkinshaw, Lecuona, & Barwise, 2016).

Are practitioners simply not heeding the advice from researchers, or are they unknowingly being restricted by what is referred to as the “bounded model of decision making”? According to this theory, the limited knowledge around a field will often constrain the number of alternatives that can be evaluated by individuals (Baumann, Fluke, Dagleish, & Kern, 2014; Puranam, Stieglitz, Osman, & Pillutla, 2015).

In the field of management sciences, the movement towards evidence-based practices is known as evidence-based management (EBM) (Gubbins & Rousseau, 2015). The goal of EBM is to promote an improved level of professional decision making through

the use of practices that lead to desired outcomes and eliminating dysfunctional practices (Rousseau & Gunia, 2016). In short, to close the gap between research and practice.

1.3. Research objectives

The fundamental question this research aimed to answer is: “Is there a divergence between the research-based selection methods and those used in practice by line managers and human capital management (HCM) practitioners in South African technology firms?”.

The main objectives of the research were:

- Objective 1: To determine if there is a significant divergence between the selection methods used by line managers and HCM practitioners in South African technology firms and selection methods that have been research-proven to be the highest predictors of future job performance.
- Objective 2: To investigate if differences exist between line managers and HCM practitioners on the perception of the validity of these selection methods.
- Objective 3: To explore how the perceptions of validity correlates with frequency of use for line managers and HCM practitioners.

1.4. Research aim

The research aim of this study was threefold:

Firstly, the researcher aims to gain an understanding of the perceived validity line managers and HCM practitioners place on research-proven selection methods in South African technology firms.

Meta-analytic studies have clearly indicated that some employee selection methods are better predictors of future job performance than others. These comprehensive studies have also advised practitioners on which combinations will yield the highest composite validity and are the most cost-effective to utilise.

The second aim of the study was to add to the growing conversation around the research-practice gap and the divergence between academic research and practice in management sciences and the importance of bridging the gap. The researcher hoped to offer EBM as a possible solution to address this divergence.

The third aim of this study involved the possible implications this research findings could have for the employee selection methods used in current South African technology firms. It is anticipated that through the adoption of EBM, South African technology firms can leverage sound academic research that could aid them to remain competitive in an increasingly global knowledge economy.

The adoption of EBM in selection practices alone could have significant implications for South African technology firms. Research-proven employee selection practices could assist firms in developing suitable tools to better select future employees, provide them with an improved ROI on their recruitment and selection expenditure and assist them in achieving their strategic objectives.

2. LITERATURE REVIEW

2.1. Introduction

The purpose of this study was to determine the divergence between research and practice in the use of employee selection methods in South African technology firms. This chapter provides an overview of the academic literature that was significant in constructing an argument for the need to conduct this research. The chapter is laid out in such a way as to provide context around the relevant constructs that were pertinent in reviewing the literature. In addition to reviewing important implications from the literature, arguments were made to highlight the increased divergence between research and practice in the field of management sciences. By narrowing focus to employee selection methods as a proxy, this study intends to stress the possible lost opportunity for South African technology firms that use employee selection methods that are bound by a lack of knowledge and does not heed evidenced-based research.

The literature is broken down into six sections: The first section clarifies the term “employee selection” and deals with the importance of utilising effective selection methods. The second section discusses the emergence of the knowledge economy (KE) and as a result the emergence of the knowledge worker (KW). This section also briefly discusses key trends in the technology industry and its implications for South African technology firms.

The third section unpacks historic personnel selection methods and identifies the key ones that will form part of this study. Whilst this study certainly endeavoured to suggest useful selection methods for South African technology firms, it was by no means an exhaustive study in modern selection methods. Rather, the chapter highlights meta-analytic studies as the pinnacle of academic research. As a result it will only focus on selection methods that have been the subject of studies of this nature.

The fourth section deals with literature discussing the validity estimates of employee selection methods as predictors of overall job performance. A common theme throughout the literature is the increased validity of certain selection methods as high predictors of future job performance compared to others that are less effective. This section also highlights the increased validity gained by combining selection methods.

The fifth section highlights the gap between research and practice in management sciences. This section discusses similar studies conducted on the validity estimations of

research-proven selection methods in countries outside South Africa.

The sixth and final section discusses the literature around bounded rationality in organisational decision making and introduces an argument for evidence-based management (EBM) as a possible solution to the divergence between research and practice. The literature section thus integrates selection and EBM literature to address to the divergence between research and practice in the use of employee selection methods.

2.2. The importance of effective employee selection

The benefits of effective employee selection have been well documented (Kim & Ployhart, 2018; Sutherland & Wöcke, 2011). Employee selection is one of the most important decisions any firm can make and has a direct impact on firm performance (Sutherland & Jordaan, 2014). The term “employee selection” is often confused with “employee recruitment” and they are often interchanged in practice. Many research articles fail to distinguish between the two constructs and often group them under “employee recruitment” in the literature.

Whilst they are very closely related and together form the overall process of attracting and selecting employees, the two constructs are unique in their purpose. Employee recruitment relates to the attraction of potential applicants to apply for a position. As a result, its primary focus is the overall quality of the pool of potential applicants. In turn, employee selection is concerned with assessing the strengths and weaknesses of the relevant applicants with the intention of hiring them (Boxall & Purcell, 2011). Whilst employee selection is greatly affected by the pool of available candidates attracted by the employee recruitment process, this study only focused on the literature pertaining to the validity of employee selection methods used in selecting possible employees from the applicant pool.

The argument stressing importance of using effective employee selection methods on employee hiring decisions is compelling. If an organisation today is hiring on a random basis with a 20% hiring success rate from those selected, by using a selection method with a relatively low validity of 0.10, they will only increase their successful hires to 25%. If the same firm rather uses a selection method with a relatively high validity of 0.50, they will increase their percentage of successful hires to 52%. The difference between using a high-validity selection method over a low-validity selection method increases the number of successful hires by 27 percentage points (O’Leary et al., 2002).

Human capital expenditure is amongst the highest line items on a firm's income statement. Direct costs on the income statement are easy to calculate and measure. These include agency fees, advertising fees, recruitment fees, employee relocation expenses, employee training and employee office expenses (Swanepoel, Erasmus & Van Wyk, 2003). Although the income statement reflects the direct cost pertaining to employee salaries it fails to indicate the indirect cost of making the wrong selection decisions.

Indirect costs associated with employee turnover are: possible loss of knowledge (Eckardt, Skaggs & Youndt, 2014), productivity impacts (Brymer & Sirmon, 2018), loss of workforce morale (Tziner & Birati, 2015), loss of organisational momentum (Chen, Ployhart, Thomas, Anderson, & Bliese, 2011), and customer dissatisfaction (Holtom, & Burch, 2016). High employee turnover has been shown to damage collaboration, increase workloads for remaining employees and interrupt routines (Reilly, Nyberg, Maltarich, & Weller, 2014). Further indirect cost associated with incorrect employee selection include damage to firm brand, reduced customer experience, increased stress on line managers and even unnecessarily disruptive union activity (Sutherland & Wöcke, 2011).

The benefits for firms utilising effective selection methods are in their ability to select the highest possible candidates from its applicant pool (Sutherland & Wöcke, 2011). The higher the calibre of recruit, the greater the chances of employing a high-calibre knowledge worker leading to an increase in the firm's ability to be competitive in a knowledge economy and achieve a decent return on its selection ROI.

Hall (1917) referred to the challenge of employee selection as the "supreme problem" (p.9). A century after his work, the challenge remains very similar. The emergence of the knowledge economy has given rise to an era where the quality of human capital talent will increasingly be a source of competitive advantage.

2.3. The knowledge economy and the dawn of the knowledge worker

The resource-based view (RBV) of the firm regards a firm's unique and valuable resources as its primary source of continuous competitive advantage (Barney, 1991). The knowledge-based view (KBV) broadens this view of the firm by highlighting knowledge as a firm's source of prolonged competitive advantage (Grant, 1996).

The transition from RBV to KBV signals a transition from traditional sources of firm

strength such as capital and labour towards the creation of knowledge, innovation and technological change. According to the KBV, the emergence of the knowledge economy has resulted in firms, and particularly those in the technology sphere, being increasingly dependent on the combined knowledge of their workforce.

The impact of the knowledge economy has been the subject of numerous studies. This has led to a broad definition of the term. This study defined the knowledge economy in agreement with Powell and Snellman (2004):" We define the knowledge economy as production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence. The key component of a knowledge economy is a greater reliance on intellectual capabilities than on physical inputs or natural resources" (p.201).

Since the late 1950s scholars have suggested that technology-based on knowledge and information dissemination have been at the forefront of economic output for developed countries (Hall & Jones, 1999). The rapid acceleration in the capability of microchips has given rise to an age of knowledge acceleration in which Moore's law indicates that the processing power of a microchip will double every two years (Schaller, 1997). This has seen the rapid acceleration from the development of the first primitive personal computer in the 1950's to the forth industrial revolution and bleeding-edge technology such as robotics, artificial intelligence, internet-of-things (IoT) and big data.

At the heart of these rapid developments have been technology-empowered knowledge workers (Lee & Trimi, 2016). According to the KBV, the tacit component of knowledge is embedded in the individual and has become the primary source of competitive advantage (Wright et al., 2018). "The manual worker is yesterday... The basic capital resource, the fundamental investment, but also the cost centre for a developed economy is the knowledge worker who puts to work what he has learned in systematic education, that is, concepts, ideas and theories, rather than the man who puts to work manual skill or muscle" (Drucker, 2012, p.32).

The knowledge worker brings with him/her a greater level of mobility which in turn results in higher levels of recruitment and selection. Research show that the average job tenure by younger knowledge workers are decreasing (Laird, Harvey, & Lancaster, 2015). The growing concern for firms is that the knowledge they possess is likely to be tacit, invisible, and reside in the individual (Staats, Brunner, & Upton, 2011). This tacit knowledge thus stays and leaves with the knowledge worker making effective recruitment and selection methods a source of competitive advantage for firms.

The high mobility of knowledge workers has resulted in increased research around mitigation strategies in retaining them. Research include the role of wages in mitigating knowledge worker turnover (Ejermo & Schubert, 2018), migration effects on firm performance (Campbell, Ganco, Franco, Agarwal, 2012) and the effects of intra-industry mobility patterns of knowledge workers (Ganco, Ziedonis, & Agarwal, 2015).

The effects of the knowledge economy are amplified in high-velocity industries where underlying forces change constantly and rapidly (Park, Howard, & Gomulya, 2018). This development has put an even greater importance on effective staffing and has elevated the importance of recruitment and selection methods to attract and select high-calibre knowledge workers (Kim & Ployhart, 2014).

2.4. Historic personnel assessment methods and their ability to predict future job performance

Inaugural work that has been done on assessment methods date as far back as the 1920s (Marshall, 1920). Foundational work provided a platform for the first study on the predictive validity coefficient of employee selection being conducted in 1949 (Brogden, 1949). It is, however, the initial meta-analysis conducted by Schmidt & Hunter (1998) and recently updated by Schmidt, Oh and Shaffer (2016) that has shed the most light on this topic. The researchers conducted a meta-analysis of eight decades worth of research studies in the field that involved thousands of companies and millions of employees.

Their research presented the validity of 31 procedures for predicting future job performance. Their findings conclude that, of the main selection methods used, some traditional popular methods such as the amount of education, person-job fit, and person-organisation fit have very low validity. Others such as graphology have essentially no validity at all. Yet others such as general mental ability (GMA), are tremendously accurate for predicting future job performance.

Table 1: Research-based validity estimates of employee selection methods

	Method	Research Estimate	Meta-Analysis
		<i>r</i>	
1	General mental ability (GMA)	.65	Hunter, J. E., Schmidt, F. L., & Le, H. (2006). Implications of direct and indirect range restriction for meta-analysis methods and findings. <i>Journal of Applied Psychology</i> , 91(3), 594. Salgado, J. F., Anderson, N., Moscoso, S., Bertua, C., De Fruyt, F., & Rolland, J. P. (2003). A meta-analytic study of general mental ability validity for different occupations in the European community. <i>Journal of Applied Psychology</i> , 88(6), 1068. Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. <i>Psychological bulletin</i> , 124(2), 262-274. Schmidt, F. L., Oh, I. S., & Shaffer, J. A. (2016). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 100 years of research findings.
2	Interviews (structured & unstructured)	.58	Huffcutt, A. I., Culbertson, S. S., & Weyhrauch, W. S. (2014). Moving forward indirectly: Reanalyzing the validity of employment interviews with indirect range restriction methodology. <i>International Journal of Selection and Assessment</i> , 22(3), 297-309. Oh, I. S., Postlethwaite, B. E., & Schmidt, F. L. (2013). Rethinking the validity of interviews for employment decision making. Received wisdom, kernels truths, and boundary conditions in organizational studies.
3	Work sample tests	.44	Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternative predictors of job performance. <i>Psychological bulletin</i> , 96(1), 72.
4	Assessment centres	.36	Arthur, Jr, W., Day, E. A., McNelly, T. L., & Edens, P. S. (2003). A meta-analysis of the criterion-related validity of assessment center dimensions. <i>Personnel Psychology</i> , 56, 125-154.
5	Biodata	.35	Rothstein, H. R., Schmidt, F. L., Erwin, F. W., Owens, W. A., & Sparks, C. P. (1990). Biographical data in employment selection: Can validities be made generalizable?. <i>Journal of Applied Psychology</i> , 75(2), 175.
6	Academic grades	.32	Roth, P. L., BeVier, C. A., Switzer III, F. S., & Schippmann, J. S. (1996). Meta-analyzing the relationship between grades and job performance. <i>Journal of applied psychology</i> , 81(5), 548.
7	Years of education	.27	Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. <i>Psychological bulletin</i> , 124(2), 262-274.
8	Reference checks	.26	Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternative predictors of job performance. <i>Psychological bulletin</i> , 96(1), 72.
9	Personality	.21	Salgado, J. F., & Tauriz, G. (2014). The Five-Factor Model, forced-choice personality inventories and performance: A comprehensive meta-analysis of academic and occupational validity studies. <i>European Journal of Work and Organizational Psychology</i> , 23(1), 3-30.
10	Interests	.14	Van Iddekinge, C. H., Roth, P. L., Putka, D. J., & Lanivich, S. E. (2011). Are you interested? A meta-analysis of relations between vocational interests and employee performance and turnover. <i>Journal of Applied Psychology</i> , 96(6), 1167.
11	Work experience	.10	Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. <i>Psychological bulletin</i> , 124(2), 262-274.
12	Age	.03	Ng, T. W., & Feldman, D. C. (2008). The relationship of age to ten dimensions of job performance. <i>Journal of applied psychology</i> , 93(2), 392.

2.4.1. General mental ability (GMA)

Intelligence has been the focus of numerous studies by psychologists for more than 100 years (Schmidt, 2002). Also defined as general cognitive ability, general intelligence or the *g*-factor, GMA can be defined as the general efficiency with which the brain solves complex problem (Schmidt & Hunter, 1998). GMA has been shown to directly affect a person's spatial, verbal, numerical and emotional abilities (Song, Huang, Peng, Law, Wong & Chen, 2010).

GMA was considered to be the primary predictor of future job performance based on several meta-analytic studies (Hunter & Schmidt, 1996; Ree & Earles, 1992; Schmidt, 2002; Schmidt et al., 2016; Schmidt, Shaffer, & Oh, 2008). So overwhelming was the evidence from these studies that a number of researchers were advocating the use of

GMA as the main, if not sole, selection method at the turn of the century (Menkes, 2005; O'Leary et al., 2002). Although GMA should be considered the pinnacle of future job performance predictors, recent studies have conceded that GMA should not be used in isolation (Gonzalez-Mulé, Mount, & Oh, 2014; Schmidt et al., 2016).

Rather, these studies have highlighted the advantage of combining optimally-weighted cognitive selection tests in conjunction with selection methods that test non-cognitive constructs. These studies suggest the combination of these methods will yield the optimal results (Wee, Newman, & Joseph, 2014). So great is the validity of GMA as the primary predictor of overall job performance that numerous researchers have suggested all other selection methods should be seen as supplements to GMA (Gonzalez-Mulé et al., 2014; Schmidt & Hunter, 1998; Schmidt et al., 2016; Wee et al., 2014).

Of all known and commonly used selection methods, GMA has the highest overall validity for predicting future job performance (Hunter & Schmidt, 1996; Ree & Earles, 1992; Schmidt et al., 2016). The mean validity of .65 in table 1 is the average of eight meta-analytic studies as rendered by Schmidt *et al.* (2016) and will be the validity number used for this study. Their research was based on the original research conducted by Hunter and Schmidt (1996) as well as Hunter, Schmidt and Le (2006). However, in the second study, the researchers applied a new range statistical correction procedure.

The revised results indicated that the original study, although ranking GMA as the number one predictor, severely underestimated its validity. The revised findings indicate that GMA has a .74 validity for professional jobs and a .39 validity for unskilled jobs. The average for medium complexity jobs, which includes 66% of all US jobs, was .66. When combined with several other meta-analytic studies arrived at a mean average validity of .65.

Research also underlined the validity of GMA for predicting a person's ability for job-related training. This indicates that when an employer selects an employee that scored high on GMA tests, the employer will not only receive an employee who will more than likely have a high level of job performance but also an employee who will have a superior ability to learn from job training programs and obtain job-related knowledge faster through on-the-job experience. In a faced-paced and constantly changing era where a person's ability to learn-unlearn-relearn is of utmost importance, this ability has an important implication for a firm's overall competitiveness in a knowledge economy (Russell & Brannan, 2016).

Further studies around GMA included investigating the effect GMA has on task performance (Randall, Oswald, & Beier, 2014), non-task performance (Gonzalez-Mulé et al., 2014) and GMA's effect on job performance ratings (Ohme & Zacher, 2015; Schmidt, 2002). Interestingly these studies found there to be a strong correlation between an individual's GMA and the ability to stay focused on a complex task whilst maintaining a high aptitude for career adaptability. However, GMA was found to be a weak-to-moderate predictor of both counterproductive work behaviour and organisational citizenship behaviour.

Further, GMA has a relatively low cost of deployment. There are a number of comprehensive cognitive tests available to organisations today. Tests include cognitive reasoning, problem solving, perception, memory, verbal and mathematical ability to name a few. Tests batteries range from an hour to full day and can be completed in test centres or on line. Research conducted by Schmidt and Hunter (1998) and Schmidt *et al.* (2016) on 12 main employee selection methods ranked GMA as the third lowest overall in terms of cost of deployment and the second overall in duration and ease-of-use.

The comprehensive research findings on the high validity estimates of GMA raised interesting questions around the utility of applying additional selection methods. Utility in this case can be defined as the marginal increase in validity by adding an additional selection method. Due to GMA having a high validity as well as its relative low cost of deployment, the discussion in literature on alternative selection methods have progressed from their stand-alone validity to their composite utility when added to GMA (Huffcutt, Culbertson, Goebel, & Toidze, 2017; Ohme & Zacher, 2015; Rynes et al., 2007; Schmidt, 2002; Schmidt et al., 2016). Simple combinations of some of these methods could drastically affect their composite validity and overall utility. For example, a combination of GMA testing and employment interviews with respective individual validities of .65 and .58 yielded a composite validity of .76 (Schmidt et al., 2016).

An additional advantage to using GMA lies in its universal durability. Certain selection methods have a select "shelve life" i.e. whilst previous experience has been shown to only be able to predict job performance for the first five years on the job, GMA does so indefinitely (Schmidt et al., 2016). Yet despite the overwhelming evidence in supporting the benefits of utilising GMA, research among international HCM practitioners suggest it is not commonly used as a selection method and has a relatively low perceived validity compared to proven validity (Jackson, Dewberry, Gallagher, & Close, 2018; Tenhiälä,

Giluk, Kepes, Simón, Oh, & Kim, 2016). These studies suggested that practitioners might resist certain types of research findings that are uncomfortable to accept or believe. In this case, research findings that value cognitive ability if you perceive yourself not to be intelligent.

2.4.2. Emotional intelligence

The topic of emotional quotient (EQ) has become a popular focus area for researchers in both the management and psychology domains, especially since the best-selling book on the topic by Goleman (1995). This has prompted numerous studies on the effect of EQ and the importance of recognising it as a separate construct from GMA (Cote & Miners, 2006). Whilst mixed emotional intelligence (EI) measures have become popular tools amongst firms, there still remains many questions on the theoretical base, definition, measurement of and validity around EQ as a separate construct (Joseph, Jin, Newman, & O'Boyle, 2015; Joseph & Newman, 2010). These authors suggested that early developers of EI measures might have participated in heterogeneous domain sampling by combining a number of well-known psychological content domains.

Indeed, there is strong literature indicating that most psychologists do not view emotional intelligence as a distinct trait but rather as a chance combination of constructs that measure clusters of well-established psychological traits (Matthews, Zeidner, & Roberts, 2004, Joseph et al., 2015; Joseph & Newman, 2010). Many scholars believe that EQ is merely an amalgamation of cognitive ability and specific personality traits that can be grouped under traditional personality models such as the Big Five personality traits. The authors argue that EQ will be adequately tested through the combination of GMA and personality tests as these are more precise measurements of the individual constructs of EQ (Joseph & Newman, 2010; Menkes, 2005; Schmidt & Hunter, 2004; Schmidt et al., 2016). For the purposes of this study the researcher concurred with this school of thought and did not unbundle EQ from GMA or personality tests.

2.4.3. Employment interviews

For the purposes of this study interviews were used as a collective term for both structured and unstructured interviews. Structured interviews comprised of questions that have been carefully determined by the interviewer and did not allow for deviation away from the set questions. In contrast, unstructured interviews did not have a fixed format and allowed for the interviewer to ask different questions, in different sequences, to different candidates (Huffcutt, Culbertson, & Weyhrauch, 2014; Huffcutt, Roth, &

McDaniel, 1996).

Two recent meta-analytic studies have been conducted on the validity of interviews as a predictor of future job performance. The first study was conducted by Huffcutt *et al.* (2014) and ranked interviews in four levels. Level 1 being highly unstructured, level 2 contained interviews with low-to-moderate structure, level 3 included interviews with moderate-to-high structure and level 4 interviews were highly structured. The validity estimates varied vastly ranging from .20 for level 1 to .46 for level 2, .71 level 3 and .70 for level 4. In their research, as well as a similar study to this one conducted by Jackson, *et al.* (2018). the researchers indicated level 2 as a sensible category for representation when listing the validity of collective interviews. This study will use this validity number of .46 as the predictor of future job performance for collective interviews.

The second study was conducted by Schmidt *et al.* (2016) and was based on the original meta-analytic study conducted by Schmidt and Hunter (1998) as well as the study conducted by Conway, Jako and Goodman (1995). This study corrected for range restrictions in previous studies that initially underestimated the validity of both structured and unstructured interviews and found the average collective validity for structured and unstructured interviews to be .58 (Oh, Postlethwaite & Schmidt, 2013).

The same study found the collective mean incremental validity of interviews to be .11 which resulted in an increased validity of 18% if used in combination with GMA. This makes interviews a strong complement to use with GMA when formulating a selection strategy. Lastly, the study showed interviews to be moderate predictor of training performance.

2.4.4. Work sample tests

Work sample tests are practical hands-on job simulations of certain elements of a job the candidate would have to perform. For instance, a candidate might be required to fix or write a couple of lines of code when interviewing for a software developer role. As such, work sample tests are popular with skilled worker selection as this form of selection requires an applicant to be familiar with the tasks required for the occupation. The validity of work sample tests for predicting future job performance was reported to be .44 based on the original meta-analytic study conducted by Hunter and Hunter (1984).

Several further studies were conducted on the validity of work sample tests. These were eventually meta-analysed by Roth, Bobko and McFarland (2005) and found a reduced

validity number of .33. These researchers did however indicate that the use of work sample tests in the services sector could have had an impact on the reduced validity.

Finally, recent research by Schmidt *et al.* (2016) included these studies as well as the original work conducted by Schmidt and Hunter (1998) and has indicted the validity number for work sample tests to be .54 for traditional manual skilled trades such as mechanics and welders. The researchers also found the incremental validity of work sample tests to be weak at .003 making it a poor method to include as a supplement to GMA. This research also showed work sample tests have no validity for predicting training performance. For the purposes of this study, the researcher used the original validity number of .44 as indicated by Hunter and Hunter (1984) for the ability of work sample testing to predict future job performance.

2.4.5. Assessment centres

Research indicated that assessment centres are not widely used as they are time-consuming and, as a result, not cost effective (Schmidt *et al.*, 2016). An assessment requires an individual to travel to a central location and spend significant time on-premise, in most cases ranging between a one and three days. Assessors could include specifically trained managers and personnel psychologists that spend time observing and candidates on pre-defined exercises.

Assessments could include a wide verity of constructs ranging from leadership, group work and in-basket assessments. Arthur Jr., Day, Mcnelly and Edens (2003) found the validity of assessment methods to be .36. The more recent and statistically revised validity figures calculated by Schmidt *et al.* (2016) indicated a similar validity of .37.

Even with a substantial individual validity, assessment centres have low incremental validity of only .014 resulting in only a 2% validity increase when combined with GMA. The measure is however useful as a predictor of training performance with a validity of .37 (Schmidt *et al.*, 2016; Wiese, 2015).

2.4.6. Biodata

Also referred to as biographical data measures, biodata aims to gain insight into the candidate from past life experiences. Biodata includes empirically developed measures and questions on early life experiences such as hobbies, interests, school achievements, student organisations, sport participation etc. Measurement questions

are chosen to correlate with and measure specific criteria that would be required by the job.

Some scholars have questioned the accuracy of biodata measures as they are not completely actuarial due to the reliance on choosing hypotheses upfront when developing the measurements (Schmidt & Hunter, 1998; Schmidt et al., 2016). Recently there has also been increased complexity for firms wanting to make use of biodata, as antidiscrimination laws prevent the asking of certain question such as age, gender and marital status.

Original meta-analytic research indicated the validity of biodata as a predictor for future job performance was substantial at .36 (Rothstein, Schmidt, Erwin, Owens & Sparks, 1990). The researchers agreed with earlier research by Hunter and Hunter (1984) that listed the validity of biodata second only to GMA as an overall predictor of future job performance at the time. It has to be noted that the statistical corrections applied on the same data by the meta-analytic studies of Schmidt and Hunter (1998) as well as Schmidt *et al.* (2016) resulted in biodata slipping down from second to fifth as an overall predictor. However, this was due to the increased validity of the other selection methods rather than a decline in validity for biodata as these scholars found a similar validity of .35.

Interestingly, the researchers all found the incremental validity of biodata combined with GMA only rendered an increased validity of .036 or 6% making it a weak compliment (Schmidt et al., 2016). The researchers believed that the small incremental validity compared to the high overall validity is due to biodata sharing many comparisons with GMA (Schmidt, 1988). That is, that measurements used for biodata are also indirectly linked to mental ability and as such, they are substantially correlated. The same research found biodata to be a moderate predictor of training performance with a validity of .30.

A further challenge to firms considering the use of biodata measures is that biographical measurements are technically complex and time-consuming to compile. They require large data sets and a high level of statistical sophistication to develop. Biodata instruments are thus only useful to organisations that are large enough to benefit from the required investment in time, effort and money in developing these data sets and have a large number of generic jobs that are applicable to those data sets. Researchers have recently been discussing what implications new technologies like social media and the ability to leverage big data will have on biodata inventories. The current consensus seems to be that it will be up to individual firms to invest in tools and techniques to extract

and combine the data they require to form a useful biographical picture of the candidate (Roth, Bobko, Van Iddekinge, & Thatcher, 2016; Shah, Irani, & Sharif, 2017; Van Iddekinge, Lanivich, Roth, & Junco, 2016).

2.4.7. Academic grades

The debate around the ability of academic grades to predict future job performance is ongoing (Hogan, Chamorro-Premuzic, & Kaiser, 2013; Ones, Viswesvaran, & Schmidt, 2017; Roth, BeVier, Switzer, & Schippmann, 1996; Trapmann, Hell, Hirn, & Schuler, 2007). Proponents of the validity of academic grades argue that they are a valuable predictor of intelligence and motivation (Campion, 1978). Meanwhile, opponents argue that skills acquired in early education have very little bearing on the requirements of a job and that it is not possible to understand the background in which the candidate was able to achieve these grades. They argue that background has a large bearing on a person's ability to achieve a certain grade and as such, high-potential candidates that come from less favourable circumstances are potentially discriminated against and run the risk of slipping through the selection net (Baird, 1985).

Early attempts at meta-analysis were not able to give a definitive answer due to small sample size and incorrect observation correlations (Roth et al., 1996). These researchers conducted a comprehensive study in 1996 in which they corrected for certain previous research artefacts. Their research found the validity of academic grades as predictors for future job performance to be .32. The researchers were unable to indicate an incremental validity of academic grades when combined with GMA and suggested future researchers to focus on this area.

Substantial correlations were found in studies of the relationship between GMA and academic grades (Barnett, Pearson, Pearson, & Kellermanns, 2015; Laidra, Pullmann, & Allik, 2007; Lounsbury, Sundstrom, Loveland, & Gibson, 2003). The 1998 meta-analytic study by Schmidt and Hunter (1998) and later revised by Schmidt *et al.* (2016) did not include academic grades as a possible selection method. Whilst they do not elaborate on the reason it is feasible to assume that these researchers subscribed to the school of thought that the close correlation between GMA and academic grades do not merit the inclusion of the latter.

2.4.8. Years of education

It is important to distinguish between years of education and academic grades. As

discussed earlier, academic grades are a useful predictor as it indicates a level of intellect held by the candidate and as such is strongly correlated with GMA (Barnett et al., 2015; Laidra et al., 2007; Lounsbury et al., 2003). Instead, years of education was deemed to have a fairly low validity of .27 as a predictor of future job performance based on early research (Hunter & Hunter, 1984).

Schmidt and Hunter (1998) found the same low validity number for years of education but substantiated their finding with an important clarification. They indicated that years of education was not irrelevant to occupational success as it is a logically important determinant of the level of job a candidate can fill. The validity number indicated that years of education was merely a weak predictor of future job performance amongst candidates who already applied for the job. As an example, if a number of candidates apply for a high-skilled system architect position and their years of education range from six to ten years, the validity of .27 indicates that those applicants who have ten years of education will only have slightly better job performance based on those with six years' worth of education.

Schmidt *et al.* (2016) indicated years of education to have a low incremental validity number of 0.03 thereby only increasing validity by 4% if combined with GMA. Hunter and Hunter (1984) found years of education to have a .20 validity for performance in training programs. The conclusion from these meta-analytic studies indicated that years of experience is a weak method to use as a predictor of future job performance, in combination with GMA and performance in training programs.

2.4.9. Reference checks

Although the meta-analytic study by Hunter and Hunter (1984) indicate that the validity number for reference checks is .26 and the incremental validity number if combined with GMA is .038, researchers have recently questioned the accuracy of these validity numbers. In addition, a number of recent successful lawsuits in the US brought on by people who received negative references from past employers resulted in the majority of organisations only willing to confirm employment dates and job titles.

Researchers believed this had an effect on the perceived usefulness and frequency of use of this selection method in the US (Schmidt et al., 2016). In addition, it also explains why no attempt was made to conduct subsequent studies on this selection method in the past 30 years. However, since 2001 a number of states have enacted laws that protect previous employers from lawsuits should they provide a less than favourable

reference. In practice, this has had little effect on the use of reference checks by US firms, with most firms remaining reluctant to provide reference checks that span outside dates and position (Cooper, 2001).

As such, the academic literature on this topic remains limited. The only meta-analytic study available remains that conducted by Hunter and Hunter (1984) and it is these validity numbers that were used for the purpose of this study.

It is unclear what effects the introduction of the Protection of Personal Information act (POPI) has on South African firms' willingness to provide reference checks for previous employees. Although literature remains scant, two textbooks consulted cautioned HCM practitioners to provide only the necessary information and exercise prudence (Dessler et al., 2102; Wörnich, Carrell, Elbert, & Hatfield, 2014).

2.4.10. Personality

Personality measures have been widely researched with the Big-Five personality dimensions of emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness receiving particular attention. Starting in the early 1990s, there has been multiple meta-analytic studies on validity of personality measures as a predictor of future job and academic performance (Barrick & Mount, 1991; Clarke & Robertson, 2008; Digman, 1990; Ones, Viswesvaran, & Schmidt, 1993; Schmidt et al., 2008; Trapmann et al., 2007).

These studies indicated that where emotional stability and conscientiousness had universal validity, extraversion, openness to experience and agreeableness were only valid predictors for certain occupations. These findings have been supported by more recent studies with most finding conscientiousness a valid predictor (Black, Grönqvist, & Öckert, 2018; Sackett & Walmsley, 2014)

It was the meta-analytic study conducted by Salgado and Tauriz (2014) that proved to be the most comprehensive. Their findings indicate that conscientiousness had the highest validity at .21 whilst openness to experience (.13), emotional stability (.10), extraversion (.09) and agreeableness (.05) followed. (Schmidt et al., 2016) had similar findings and reported the validity of conscientiousness to be .22 with emotional stability (.12), extraversion (.09) and agreeableness (.08) showing similar validity. However, their research indicated significant difference in openness to experience and showed a validity of only .04. As no indications were given to guide researchers to the weighting

these constructs might possibly have on predicting future job performance, this study will use the conscientiousness' score of .21 reported by Salgado and Táuriz as the validity number for personality as it was deemed to be a valid predictor by the researchers.

Schmidt *et al.* (2016) echo these sentiments. Their research found that people that displayed high levels of conscientiousness developed higher levels of job knowledge which in turn led to higher levels of job performance. They further indicated that integrity tests, which mainly test conscientiousness, have the highest combined validity of .78 of all selection methods combined with GMA. This suggests practitioners would achieve a 0.13 or 20% gain in validity when combining conscientiousness with GMA versus using GMA alone. In addition, these researchers suggested that the high composite validity of structured interviews and GMA (.76) might be as a result of structured interviews measuring, in part at least, conscientiousness. This makes the combination of integrity tests and GMA the highest-ranked combined selection method organisations can use according to their research (Schmidt et al., 2016).

2.4.11. Interests

Early researchers have held a shared belief that vocational interests are weak predictors of future job performance (Cleveland, 1948; Holland, 1959). It was the initial meta-analytic study conducted by Hunter and Hunter (1984) that provided more clarity on the ability of vocational interests to aid in employee selection. Their study indicated that vocational interests had a fairly low validity of .10 for predicting future job performance.

The findings puzzled researchers and practitioners. Surely interest in a specific vocational field would affect a person's ability to perform in that job? It was the work of Holland (1986) that eventually provided more clarity on the matter. He found that although vocational interests had a significant influence on the jobs people would initially prefer, it had very little impact on how people performed once in the job. Predictors like mental ability and conscientiousness had a much larger impact on job performance once a person was in the job. Hunter and Hunter (1984) concurred that vocational interests were a better predictor of on the job training than it was of job performance. It does appear as if many researchers agreed with these findings as several researchers did not even include interests as an option of when researching selection methods (Anderson & Witvliet, 2008; Ployhart, 2006; Sackett & Lievens, 2008).

The debate was reopened in 2011 when researchers conducted a meta-analysis of the

correlation between interests and employee performance and turnover (Van Iddekinge, Roth, Putka, & Lanivich, 2011). Although the study found little dissimilarities in terms of the validity for job performance, the researchers discovered useful applications for training performance and both employee turnover and turnover intention. Further research findings also indicated that interests could be more useful if applied to specific jobs and specific organisations (Ryan & Ployhart, 2014). The research by Van Iddekinge *et al.* (2011) did result in a revised validity of .14 for vocational interests as predictors of future job performance.

2.4.12. Work experience

Also referred to as job experience, work experience refers to the number of years of previous experience the candidate has in an equivalent or matching job. The presumption of work experience being a valid predictor of future performance is based on the psychological principle that the best predictor of future performance is past performance. Early research on work experience focused on defining its constructs and measurement instruments (Quiñones, Ford, & Teachout, 1995), its impact on organisational learning (Guile & Griffiths, 2001; Zollo & Winter, 2002) and the impact experience had on other selection methods (Schmidt & Hunter, 1998).

The data used in early studies varied significantly, with experience varying from six months to 34 years. Under these conditions, the validity of work experience to predict future job performance was quite low at .10 with an incremental validity if combined with GMA of a mere .032 (Schmidt & Hunter, 1998). It also appears as if the relationship of experience to time is nonlinear. Research showed job performance to increase linearly with experience up to five years where after it flattened out and additional experience did not lead to increased job performance (Schmidt *et al.*, 2016).

This research indicated that on medium complexity level jobs people were constantly gaining additional job knowledge during the initial five years. Thereafter any gain in job knowledge had an insignificant impact on increased job performance. This suggests that work experience, at best, is only useful as a predictor for the first five years of future job performance. Both studies found the validity of work experience as a predictor for training performance to be .00.

2.4.13. Age

The topic of employee age has been the focus of numerous studies. This is hardly

surprising given that the average age of the global workforce has doubled from 20-24 years in 1980 to 40-44 years in 2005 according to statistics from the Organisation for Economic Co-operation and Development (OECD, n.d., para. 2). The rapidly aging average workforce have left scholars with many questions to examine.

Ouimet and Zarutskie (2014) found that there is a consistent correlation between firm age, employee age and growth. Their research indicated that young firms were large employers of young employees and remunerated their employees better compared to older firms who hired the same age employees. Another important finding of their research showed that there is a positive correlation between the number of new firms that are created and the supply of young talent in a region. They found this relationship to be especially high for high tech industries.

Schubert and Andersson (2015) found that there is a negative correlation between employee age and innovation-related indicators suggesting that older employees generally prefer older technologies and are generally characterised with reduced cognitive flexibility.

An interesting mention has to be the research conducted by (Shore, Cleveland, & Goldberg, 2003). These researchers indicated that organisations should be mindful of the candidate's age relevant to that of the candidate's future subordinates when making selection decisions. Their research suggested that significant age mismatches between manager and subordinates often have negative consequences if not properly managed.

McEvoy and Cascio (1989) examined the effect employee age has on work performance. Their meta-analytic study found age and job performance to be largely unrelated. Ng and Feldman (2008) found the validity of candidate age as a predictor of future job performance to be .03 whilst providing no validity to speak of as a predictor for training performance. Schmidt *et al.* (2016) agreed with these findings whilst also adding that the incremental validity offered by age when combined with GMA to be insignificant. The researchers also indicated that age has traditionally not been a popular selection method as the use of age of employees above the age of 40 is prohibited by US federal law.

2.5. The research-practice gap in management sciences

A recent study of practitioner perceptions of the validity, fairness and frequency of use of selection methods in the UK revealed that there is a misalignment between

contemporary research findings and practice. The findings of this study suggested that, in terms of their perceptions of the validity of selection methods, HCM-qualified respondents were not significantly more aligned with contemporary research estimates of selection methods than were laypeople (Jackson et al., 2018).

In examining the research-practice gap in employee selection methods, researchers found there to be a significant gap in both directions between academic journals and HR practitioner journals (Rynes et al., 2007; Harzing & Adler, 2016). Their work indicated that not only are practitioners not implementing academic journal research in practice but that the issues of greatest importance to practitioners are not being researched by academic journals. Their research further suggested that the applied field is not profiting from research-based advice. Moreover, that even with general uncertainty about the relative fairness of the selection methods used, this did not align with the frequency in how often these methods are being used.

Employee selection methods might represent “the greatest technological achievement in industrial and organizational psychology over the past 100 years” (Highhouse, 2008, p.333). However, their validity and utility are greatly dependent on how they are used and as such, they are subject to the knowledge and perceptions of the practitioners tasked with their application.

The studies around the perception and validity of employee selection methods have only added to the growing conversation in recent literature around the research-practice gap in the field of HCM (Banks et al., 2016; Tenhiälä, et al., 2016; Tkachenko, Hahn, & Peterson, 2017). Overall, these studies have indicated that there is significant misalignment between researchers and practitioners in countries such as the US, UK, Australia, Netherlands, Finland, Spain and South Korea on important HCM topics such as staffing. However, this has not been explored in a South African context.

These findings indicated that HCM can be seen as one of many indicators of the prevailing divergence between research and practice in the field of management sciences (Tucker & Lowe, 2014; Gubbins & Rousseau, 2015; Kieser, Nicolai, & Seidl, 2015). Banks *et al.* (2016) suggested that researchers need to ensure the relevance and possible shared value of their research for practice before embarking on a research area they deem interesting. In his paper around the relevance, reliability and rigor of management research, Vermeulen (2007) suggested that relevance “is found in generating insight practitioners find useful for understanding their own organizations and situations better than before” (p.755). These researchers further suggested that this

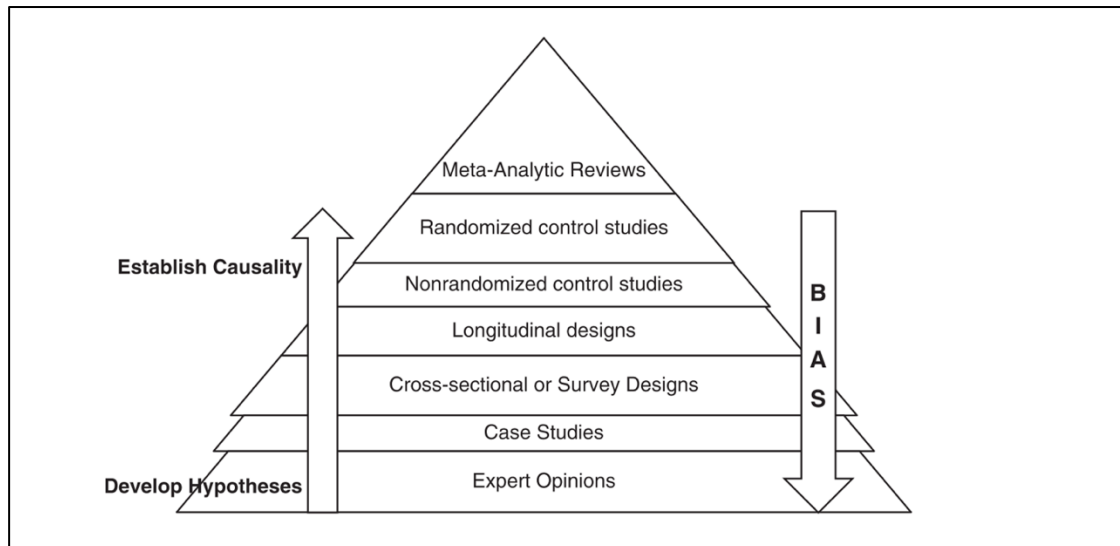
pursuit of shared value goes beyond the subject of topic, as researchers and practitioners have a different understanding and utility of data, and should aim to bridge “knowing what”, “knowing how” and “knowing why” as these competencies are complementary and have to a large extent remained separated (Banks et al., 2016; Garud, 1997).

Universities and business schools are at the centre of the research-practice conversation. In fact, so important is the role of business schools that some suggest that if institutional changes in business schools don't take place, any attempt at bridging the research-practice gap will be unsuccessful (Bennis & O'toole, 2005; Kieser et al., 2015). They have even gone as far as suggesting that the slow rate of change in business schools has been the catalyst for this divide (Banks et al., 2016).

It does seem that there is increased focus by taxpayers to get more value from their institutions in some countries. For example, UK universities have recently been required to demonstrate how faculty research is impacting the economy and society under the Research Excellence Framework (REF) (Khazragui & Hudson, 2015; Watermeyer & Chubb, 2018). The same questions have been put to schools who are tasked with developing practitioners in the HCM domain. HCM, in some form or another, is included in the curriculum for many qualifications including most business qualifications around the world. Even so, many practitioners seem to not be staying abreast with recent research or are finding it challenging to identify the most appropriate scientific evidence to support their management decisions (Kepes, Bennett, & McDaniel, 2014).

Whilst no single study is large enough to establish a scientific fact, meta-analysis should be regarded as being the pinnacle of the hierarchy of evidence for practitioners as these types of studies recognise and infer from accumulated scientific evidence on a specific topic (Gubbins & Rousseau, 2015; Kepes et al., 2014; Nimon & Astakhova, 2015; Briner & Denyer, 2012).

Figure 1: General Hierarchy of Evidence Based on Research Design (Gubbins & Rousseau, 2015)



Based on the literature in section 2.4 there is sufficient evidence that meta-analytic studies have proven that some selection methods are better predictors of future job performance than others. Yet, it is clear in many instances that practitioners simply are not utilising what research has proven (Jackson et al., 2018; Kepes et al., 2014; Rousseau & Gunia, 2016; Rynes & Bartunek, 2017; Schmidt & Hunter, 1998).

Uncertainty exists on the reasons for the divergence between research and practice in HCM. Some have suggested that HCM practitioners are unaware of the results of recent HCM research that could positively impact organisational performance (Tenhiälä et al., 2016), whilst others argued that they simply are just not implementing research-proven practices that could positively impact employee productivity and firm financial performance (Pfeffer & Sutton, 2000; Tkachenko et al., 2017). There is another school of thought that HCM practitioners might be suffering from a term called “bounded rationality” and that the concept of evidence-based management (EBM) might provide some form of antidote.

2.6. Bounded rationality and the case for evidence-based management

Some scholars argue that practitioners could be suffering from the “bounded rationality” model of decision making when it comes to employee selection (Puranam et al., 2015). The concept of bounded rationality was introduced as early as 1955 and simply states

that people's choices are not determined by an overarching goal or the properties of the external world alone. Instead their choices are heavily impacted by the knowledge they have or don't have of the world, their ability call up that knowledge when required, their ability to determine various courses of action whilst controlling for their various wants and needs, their proficiency in anticipating the consequences of these choices and to deal with the attached uncertainty (Simon, 1955). These researchers further indicated that rationality is bounded precisely because these abilities are limited. The implications are that rational behaviour, in practice, is a product of both the content and memory of people's minds as it is of the external world in which they act and which acts on them (Simon, 2000).

Decision makers that are subject to bounded rationality "often have inadequate or incomplete information to guide decisions and as such could possibly make decisions on heuristics rather than sound data" (Puranam et al., 2015, p29). The importance of reassessing decision-making paradigms in dynamic environments, such as the knowledge era, cannot be overemphasized. Decision makers that fall into the trap of inertia and allow their decisions to be governed by historic competencies run the risk of becoming a liability to their firms (Stieglitz, Knudsen, & Becker, 2016).

As the debate around the research-practice gap in management sciences has intensified, critics have begun pointing to medicine as a science that seems to be getting it right through a practice called evidence-based medicine (Gubbins & Rousseau, 2015). Through this concept, medicinal practitioners take the latest scientific research to answer the questions they are faced with in practice. In turn, research, driven by demand, is conducted in areas that are relevant to practice. Critics suggest that management sciences would do well to follow this example and that there is much to be gained from a closer alignment between research and practice by adopting EBM (Rousseau, 2006; Rousseau & Gunia, 2016; Rynes & Bartunek, 2017).

"EBM is a systematic, evidence-informed practice of management that pays meticulous attention to the quality scientific evidence, the local practice setting and the practitioner's ability to making decisions" (Rousseau & Gunia, 2016, p.7). In terms of HCM, Hamlin (2002) defined it as the conscious, clear and careful use of the best available external evidence in developing people and organisations by integrating individual HCM practitioner expertise with the best external evidence (p.468).

These researchers suggested that translational research, comprising of what is referred to as T1 and T2 research, are both adding value in the medical sciences. T1 research

concerns itself with translating science into the development of new models and guidelines. It is “research-to-practitioner” focused and requires researchers who are experts in the field of research. T2 research is concerned with translating T1 research into every-day practice and decision making and requires researchers who are masters of implementation (Woolf, 2008).

Whilst the debate is still ongoing between where T1 stops and T2 starts, translational research has had tremendous implications for sciences such as medicine. Advocates for EBM are confident it could yield the same advantages for management sciences and could be instrumental in establishing relevance in scholarship and rigor in practice (Gubbins & Rousseau, 2015; Short, 2006).

3. Research Questions

3.1. Purpose of the research

The primary purpose of this research is to determine if a divergence exists between research and practice in employee selection methods utilised by South African technology firms. The research aims to add to the growing conversation in literature around the research-practice gap in management sciences by contrasting the perceived validity of selection methods used by line managers and HCM practitioners against those that have been research-proven through substantive meta-analytic research. The emergence of an ultra-competitive knowledge economy has placed a greater importance on effective employee selection methods. Whilst researchers might have valuable advice for practitioners, the purpose of this research is to determine if practitioners are heeding this advice.

Three research questions were used to achieve the purpose of this research. Question 1 investigated whether a divergence exists between the perceived validity of employee selection methods used in practice and those that are meta-analytic research proven. Question 2 explored whether there a significant difference in the perceived validity of these selection methods between line managers and HCM practitioners. Lastly, question 3 explored if a correlation exists between the perceived validity and the frequency of use of these selection methods.

3.2. Research Questions:

3.2.1. Research question 1

Research question 1: Is there a divergence between the perceived validity of selection methods used in practice and those that are research-proven?

3.2.2. Research question 2

Research question 2: Is there a significant difference in the perceived validity of these selection methods between HRM practitioners and line managers?

3.2.3. Research question 3

Research question 3: Is there a correlation between the perceived validity and the frequency of use of these selection methods?

4. RESEARCH DESIGN AND METHODOLOGY

4.1. Introduction

The primary purpose of this research was to determine if a divergence exists between research and practice in employee selection methods utilised by South African technology firms. The researcher believed that a better understanding thereof could add to the growing conversation in contemporary literature around the research-practice gap in the greater field of management sciences.

The increasing complexity brought on by the dawn of the knowledge economy has brought with it an increased dependency on the attraction and retention of knowledge workers. In addition, this has also led to the increased mobility of these workers. To enable this study to gain an accurate view of this phenomenon in the context of South Africa, South African technology firms were identified as likely employers of knowledge workers.

As discussed in chapter two, meta-analysis should be regarded as being the pinnacle of the hierarchy of evidence for practitioners as these types of studies recognise and infer from accumulated scientific evidence on a specific topic. A total of twelve employee selection methods that have been the focus of meta-analytic studies were put forward as examples of such findings. These methods were ranked in order of validity of predicting future job performance, future training performance and incremental validity if combined with the primary research-proven selection method, GMA.

In order to achieve the required objectives, the research design was divided into three parts. The first part was concerned with determining whether a significant divergence existed between the selection methods used by line managers and HCM specialists in South African technology firms and selection methods that have been research-proven to be the highest predictors of future job performance.

The second part of the study was concerned with investigating the differences between HCM practitioners and line managers on the perception of the validity of these selection methods. The third and last part of the research was to explore if a significant correlation existed in the perceptions of the validity of these methods and the frequency in which they are being used.

The following chapter outlines the methodology used to address the above-mentioned

research aims. This section provides clarification around the research design, the population used, the process of data collection, the unit of analysis and the data analysis method used for each research question.

4.2. Research design

Research can be designed using any of the following methods: survey, grounded theory, archival analysis, action research, case study and ethnography (Saunders & Lewis, 2012). A survey design was deemed to be the most appropriate method for this study primarily due to the time constraints for the research project. To gain accurate insight of the respective research constructs, the researcher aspired to include the maximum number of respondents feasible within the given time constraint. Electronic surveys were deemed to be the most appropriate to achieve this objective.

The study used a survey questionnaire as the main instrument of inquiry. Online standardized questionnaires were administered to a selected sample of the main population. The selected research design for answering the research questions was appropriate and valuable as it enabled the researcher to ask similar questions to a large number of people. This made responses from different participants more comparable and fair. The design also minimized bias of the researcher as responses were documented, not left to interpretation, and ensured limited exposure to participants. This minimized subject bias in turn ensured the confidentiality of the respondents (Saunders & Lewis, 2012).

The survey method was also less time consuming as the researcher was not required to sit with respondents and obtain their answers to completed questionnaires (Saunders & Lewis, 2012). Time was a limitation for the identified respondents making the distribution of online questionnaires, which they could complete at their own leisure and regardless of location, vital. Respondents were able to access the questionnaires via a computer or a mobile device which made the strategy suitable. This increased the probability of receiving a high number of respondents as well as increasing the likelihood of obtaining good quality responses. Lastly, electronic surveys also allowed the researcher to obtain the data in a cost-effective manner.

Saunders and Lewis (2012) noted that there are three types of studies:

Exploratory research aims to seek new insights, ask new questions and assess topics in a new light. This form of research lends itself well to the research of new phenomena with the aim of gaining initial insight. This type of study was considered to be too general for this type of research as the variables of this research were already clear (Saunders & Lewis, 2012).

Descriptive research is designed to produce an accurate representation of persons, events or situations. This form of research should be thought of as a means to an end rather than an end in itself (Saunders & Lewis, 2012). Descriptive research often leaves good suggestions for further research as it is likely to be the forerunner to explanatory research. According to Saunders and Lewis (2012) descriptive research is useful as it can illuminate the world around us which is valuable in its own right. Descriptive research lended itself well to this study as the primary aim is to identify if there is a divergence between the employee selection methods used in practice and those that have been research-proven.

Explanatory Research focuses on studying a situation or problem in order to explain the links or relationships between variables (Saunders & Lewis, 2012). It takes descriptive research a step further by looking for the explanation behind specific occurrences through concentrating on establishing a relationship between key variables. This type of research was deemed to be too focused for the purposes of this study as the primary focus of this study is to answer the “if” rather than the “why” question.

4.3. Research methodology

All three parts of this study were quantitative in nature. According to Saunders and Lewis (2012) there are three main types of research methods: quantitative, qualitative and mixed method. Quantitative research can be defined as research that explains social phenomena according to numerical data which are analysed by means of mathematically-based methods, especially statistics (Yilmaz, 2013). These authors further state that quantitative research is premised on measuring and analysing casual relationships among isolated variables and explaining phenomena of interest based on prior theories which made it appropriate for this study.

The concepts that were being researched in this study have all been well researched and supported by meta-analytic studies which made a deductive approach suitable for

this study. As such, the use of a qualitative research methodology supported a deductive approach used for this study (Saunders & Lewis, 2012).

4.4. Population and sampling

According to Saunders and Lewis (2012), the population is the complete set of members from which the sample is taken. The population for the purpose of this study was all South African technology firms as it is reasonable to deduce that technology firms are high-employers of knowledge workers (Donate & de Pablo, 2015; Stone & Deadrick, 2015).

It was also necessary to draw a sample from businesses that are large enough to embark on regular recruitment efforts, employ a high amount of knowledge workers and have mature selection and recruitment systems in place. To this end, the population only included South African technology firms that employ more than 500 employees.

The sampling frame was also narrowed to organisations who disseminate employee selection tasks to line managers and not solely assign them to HCM practitioners. Careful attention was given to only distribute the survey to line managers who are in a position to make hiring decisions. In addition to pilot testing, initial screening questions on the survey were used to confirm that the respondent is indeed in an employee selection role.

4.5. Unit of analysis

The unit of analysis for this study were individuals who were either in a line manager or HCM practitioner role. In addition, these individuals needed to be in an employee selection role in their firm, either in the form of employee selection policy formulation or through the implementation of such a policy.

4.6. Sampling method and size

Two non-parametric sampling techniques were used to select participants for the study, namely purposive and convenience sampling.

Social scientists have documented the recent shift in nations from economies that have been largely based on natural resources and physical inputs to ones that are now based on intellectual assets (Powell & Snellman, 2004). As such, the nature of the technology sector and the larger information, communication and technologies (ICT) sector makes

for constantly-evolving constellations of organisations (Belitski & Desai, 2016; Wright et al., 2018). These ever-evolving constellations make it difficult to determine the distinguishing characteristic for each unit in the population that gives it a nonzero chance of being included in the sample rendering any form of probability sampling unusable (Etikan, Musa, & Alkassim, 2016).

Purposive sampling as a non-probability method allows the researcher to use his/her judgement to select a sample based on a range of possible reasons and premises. Also referred to as the judgement sampling, this technique allows the researcher the freedom to make a deliberate choice of participants based on the qualities they possess (Etikan, Musa, & Alkassim, 2016). This method also allows the researcher to select a sample from those who are easy to obtain (Saunders & Lewis, 2012).

Due to the researcher's experience in the industry, this study had reasonable access to both line managers and HCM practitioners within a number of leading South African technology firms. As such convenience sampling was chosen as the non-probability sampling technique of choice.

4.7. Data gathering and measurement instrument

The study involved the collection, classification and analysis of primary data from multiple sources. Electronic surveys were used as the selected measurement instrument for the study. The surveys were designed and deployed to the sampled respondents through an emailed link to a google forms designed survey. The surveys included initial screening questions to determine if respondents were in a hiring decision-making role. This direct screening method allowed respondents who did not meet the requirements for this study to be eliminated up front. This step also ensured that an incorrect respondent's time was not unnecessarily wasted as well as reducing the amount of data cleansing required post collection (Curran, 2016; DeSimone, Harms, & DeSimone, 2015).

The research touched on two important constructs of HCM, the one being policymaking and the other implementation of said policy. Research indicates that HCM practitioners are generally involved in HCM policymaking whilst line managers are the predominant vessel for policy implementation (Towney, 2014). As such, including both categories in this research allowed the researcher to gain insight into the perceptions of the perceived validity and frequency of use of selection methods by those tasked with its design and those tasked with its execution in their respective organisations.

Only when progressing past the initial screening question were respondents asked to indicate whether they were in an HCM practitioner role or a line manager role, allowing the researcher to group respondents according to responsibility and background. Respondents were also asked to provide their gender, age, years of experience and qualification level. This was followed by the definitions of key terminologies used in the survey. Respondents were then asked to indicate the perceived validity as well the frequency of use of the twelve selection methods as indicated in table 1 on page 10. To eliminate any confusion around the term “validity” respondents were asked to rank methods based on their perceived “effectiveness”. Both terms were defined as part of the terminology at the start of the survey, minimizing any chance of confusion around them.

A seven-point Likert scale was used to measure the perceived validity for each selection method whilst a five-point Likert scale was used to measure the frequency of use. The use of a Likert scale as a measurement instrument for both constructs was deemed suitable for the running of the non-parametric tests for this study (Murray, 2013). Table 2 illustrates the 7-point Likert scale anchors used to measure the perceived validity of selection methods by respondents whilst table 3 illustrates the 5-point Likert scale anchors used to measure their frequency of use.

Table 2: Seven-point Likert scale anchors for measuring “perceived effectiveness”

1	Very strongly disagree
2	Strongly disagree
3	Somewhat disagree
4	Neither agree nor disagree
5	Somewhat agree
6	Strongly agree
7	Very strongly agree

Table 3: Five-point Likert scale anchors for measuring “frequency of use”

1	Never
2	Not very often
3	Sometimes
4	Often
5	Frequently, if not always

The study was limited by only including selection methods that were considered to be familiar to line managers. The study did not distinguish between structured and unstructured interviews due to the respondents requiring prior knowledge of interview design to make this distinction. The study also used the general term “personality” as it would not be reasonable to assume that respondents would have general knowledge of specific personality models.

The study further used the term “training” as opposed to distinguishing between point and behavioural consistency methods of evaluating training and experience (Jackson et al., 2018; Schmidt & Hunter, 1998). Finally, the study used the point method research-based estimate of validity as it is a fairly simple approach and it is unlikely that line managers would be aware of the behavioural consistency method used by (Schmidt & Hunter, 1998).

4.8. Study analysis

The results of the surveys were recorded in an MS Excel spreadsheet and numerical identification numbers were assigned to the respondents. IBM SPSS Statistics v.25 was used to run the statistical tests. The following section outlines the data analysis approach for the three research questions.

Research Question 1: Ranked validity perceptions

In answering the first research question of a possible divergence between the perceived validity of employee selection methods used in practice and those that are research proven, the researcher made use of the following statistical tests.

The first step entailed calculating the mean ranks of the perceived selection methods by both line managers and HCM practitioners. The mean ranks were then compared with

contemporary research-based rankings of the selection methods outlined in chapter two. The most suitable meta-analytic study results, as defined in chapter two, were used to rank these selection methods and provided the basis for comparison.

Research question 2: Differences in ranked validity perceptions by subgroup

Research question two endeavoured to understand if any significant difference existed in the perceived validity of the chosen selection methods between line managers and HRM practitioners. To enable the researcher to answer this question, the following statistical tests were used: The mean ranks were calculated and subdivided by subgroup. They were then ranked according to perceived validity. The mean ranks were then compared by subgroup to gain insight into any possible subgroup differences.

Research question 3: Correlation between perceived validity and frequency-of-use

The third research question set out to test if there was any correlation between the perceived validity of the designated employee selection methods and the frequency of which respondents make use of them in practice. Correlation analysis was used to test the degree and significance to which one construct responds to a change in another which allows for the measuring the relationship between them (Wegner 2010).

This study made use of a Pearson's r correlation coefficient test to assess the relationship between the perceived validity of each employee selection method and the frequency of use of that specific method. As an example, the study sought to understand the relationship between the perceived validity of GMA and the frequency of use of GMA in practice. This research question thus endeavoured to test the relationship between the perceived validity and frequency of use of each of the 12 selection methods by subgroup.

Joshi *et al.* (2015) suggest that a Pearson's r test is ideal for testing relationships between Likert scale data as data can be tested at an interval measurement scale. To gain the necessary insight the tests were run per subgroup. This study believed that in addition to providing the necessary level of insight for research question three, this could provide additional clarity that could present additional insight for research questions one and two as well.

The measurement range for a Pearson's r correlation ranges from -1 to +1. A value that

is close to +1 indicates a strong positive relationship between the constructs whilst a value close to -1 indicates a strong negative relationship. The value that is close to 0 on either side signifies a weak relationship between the constructs. A low Pearson's r correlation indicates that the relationship between the measured constructs is poorly portrayed by a straight line (Wegner 2012). The statistical significance of each independent variable was considered at a 95% confidence level.

4.9. Assumptions and research limitations

A limitation of the research methodology used for this study is that the sample was not selected randomly. The primary technique used for choosing potential participants was purposive non probability sampling and as a result a large part of the population did not have a chance of being selected. This study does however believe the sample selected is appropriate to answer the research questions.

The use of online questionnaires limits respondents ability to offer explanatory answers. This limits the study's ability to understand the broader context of the responses. Whilst it would have been useful to gain further insight, careful attention was paid to the design of the questionnaire to make it precise and encompassing. The survey was distributed in English, which potentially could have affected respondents' interpretation of certain questions if they were not proficient in English. South African technology firms were however seen as large employers of knowledge workers and as such the study assumed that the respondents would be proficient enough in English to complete the survey accurately.

Convenience sampling is the least reliable technique and limits the effectiveness of the research (Cooper & Schindler, 2014). Respondents may not have shared perceptions and frequency of use honestly and openly as they might have been apprehensive to their answers reflecting negatively on them or their firm. In addition, this study made the reasonable assumption that HCM practitioners held HCM related qualifications. The study relied heavily on this assumption as the main purpose of the study was to investigate a possible divergence between research and practice. As such this study reasonably deduced that HCM qualified practitioners would potentially be the closest aligned to research around an important construct in their field.

4.10. Conclusion

In conclusion, the research set out to discover the if a divergence existed between the

perceived validity of employee selection methods used by respondents and those that have been research-proven through meta-analytic study. Additionally, the research aimed to gain insight into if the possible divergence differs between subgroups and if a correlation existed between the perceived validity and the frequency of use of each employee selection method.

The methodology and research design used for this study followed a pragmatic, deductive approach over a cross-sectional time-horizon. The research questions were the most important elements of the research design. Literature guided the design of the research questions and allowed for an electronic survey of primary data to be conducted via google forms.

5. Results

5.1. Introduction

This section discusses the empirical results for the three main research questions. The main research questions were:

Research question 1: Is there a divergence between the perceived validity of employee selection methods used in practice and those that are research-proven?

Research question 2: Is there a significant difference in the perceived validity of these selection methods between line managers and HCM practitioners?

Research question 3: Is there a correlation between the perceived validity and the frequency of use of these selection methods?

For comparison purposes, respondents were grouped by subgroups of HCM practitioner and line manager. The survey further asked respondents to indicate their qualification level, years of experience, age and gender. Participants were then asked to rank the 13 elected employee selection methods for both their perceived validity as well as their frequency of use.

Due to the term “validity” possibly being unfamiliar for laypeople, the term was replaced with “effectiveness” in the questionnaire. In addition, the survey unpacked both terms and indicated that the “effectiveness” would be used for the purposes of the survey. The use of the term “effectiveness” as a replacement for “validity” is not without precedent given the context of this study (Rynes, Colbert, & Brown, 2002). A 7-point Likert scale was used to test the perceived validity of each employee selection method and a 5-point Likert scale was used to test the frequency of use.

Overall scores were created and totalled to allow the researcher to make use of scales. The Mahalanobis method was used to check for outliers and found the highest outlier to be 12.87. This value was low enough to progress to the descriptive statistical tests.

5.2. Descriptive statistics

A total of 327 questionnaires were distributed to both line managers and HCM practitioners across five technology firms. Technology firms were chosen as they would have a high probability of being employers of knowledge workers in South Africa. A total of 226 responses were collected giving a response rate of 69%.

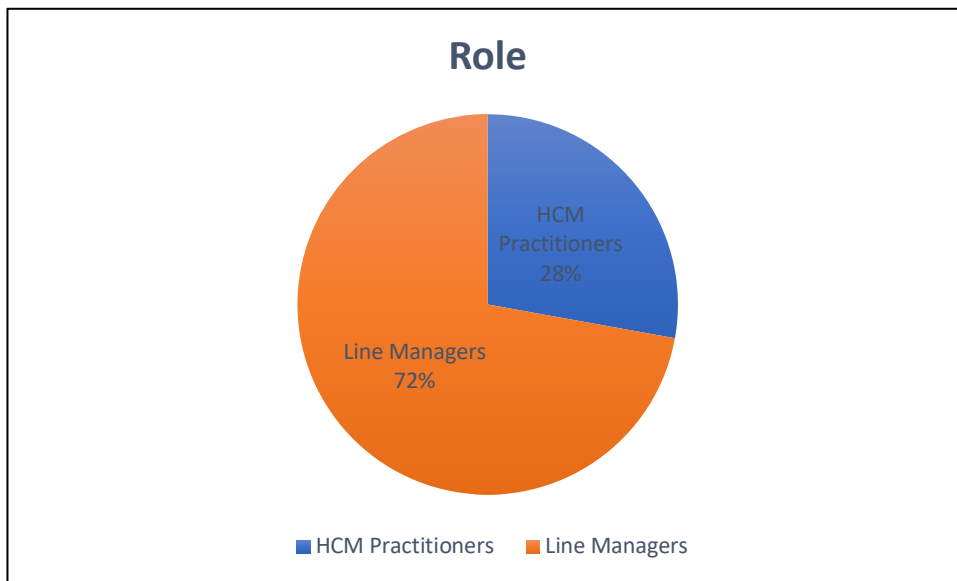
Although precautions were taken to ensure that the targeted respondents were in an employee selection role, a total of 50 respondents indicated that they were not in a role that is tasked with making or supporting hiring decisions in their firms. These respondents were removed from the dataset resulting in a total of 176 respondents that were included in the statistical analysis. The dataset for the 176 respondents was fully populated as the electronic survey asked respondents to indicate responses on the respective Likert scales with all questions being compulsory.

Descriptive statistics were used to test data validity and gain insight into the basic properties of the data. IBM SPSS Statistics v.25 was used to run the statistical tests.

5.2.1. Subgroups: Line manager and HCM Practitioner

Of the 176 respondents, 127 were in a line manager role and 49 in an HCM practitioner role. To enable the researcher to answer research question two, a minimum of 30 respondents were required for both line managers and HCM practitioners for the planned statistical tests. Data collection was extended by two weeks to ensure the minimum requirement for HCM practitioners were met. The sub-minimum of 30 HCM practitioners was important as HCM practitioners would have a higher probability of being closely aligned to relevant research in their area of expertise and would provide a more accurate assessment of research questions one and three. In addition, the subminimum of HCM practitioners were of utmost importance to answer research question two.

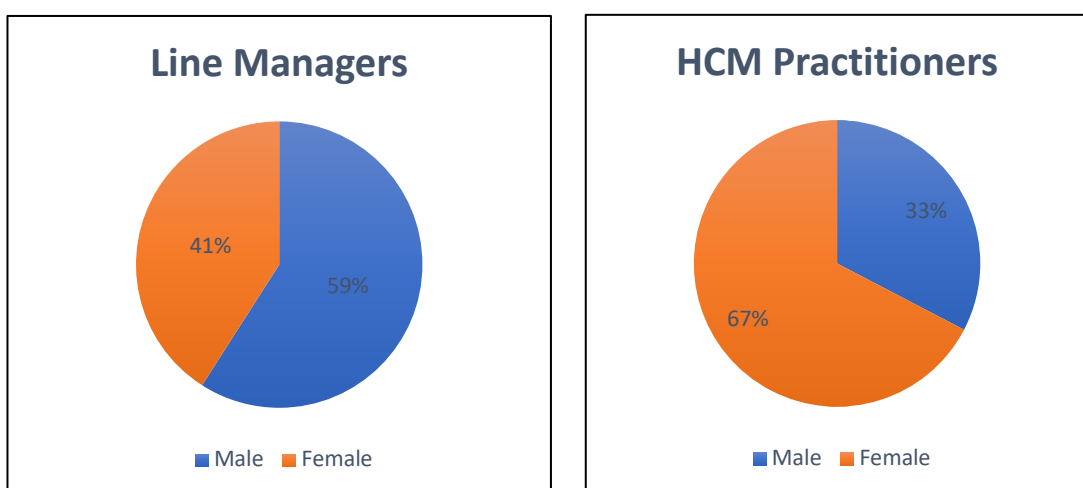
Figure 2: Subgroup classification: Line Manager and HCM Practitioner



5.2.2. Gender

Gender was well represented in both subgroups. The proportion of males to females was higher for line manager respondents (75 male and 52 female). Inversely, a greater number of HCM practitioner respondents were female (16 male and 33 female). The subminimum of 30 respondents for both male and female was achieved as required for statistical testing.

Figure 3: Gender classification for Line Managers and HCM Practitioners



5.2.3. Qualification level

The below histogram indicates the qualification level of the respondents. The left-skewed distribution indicates that the majority of respondents were fairly highly qualified with a total of 153 respondents (87%) holding an undergraduate or postgraduate degree. This would be expected as the study is aimed at understanding the perceived validity of employee selection methods in South African technology firms. Technology firms, as discussed in chapter two, would reasonably be expected to be high employers of knowledge workers.

As a result, it would also be expected that people who are tasked with leadership positions in these firms have a high probability of being knowledge workers and as a result be well qualified. It would also be expected that qualified personnel would have a higher probability of being appreciative of academic literature as they would have been exposed to academic rigour and research during their studies.

It was important for the study to gain insight from HCM qualified respondents that held undergraduate or postgraduate degrees. Of the 49 HCM practitioners that responded to the survey, 24 held a postgraduate degree and 12 an undergraduate degree. It would be reasonable to infer that a high percentage of degrees would be HCM-related degrees. As a result, these respondents would have the best probability of being subject to the importance of academic rigor as well as academic literature and research on employee selection methods, an important construct in their profession. In terms of frequency of use, they would be well positioned to indicate the divergence between research-proven employee selection methods and the contemporary techniques they utilise to select employees in their firms.

Figure 4: Qualification level distribution for all respondents

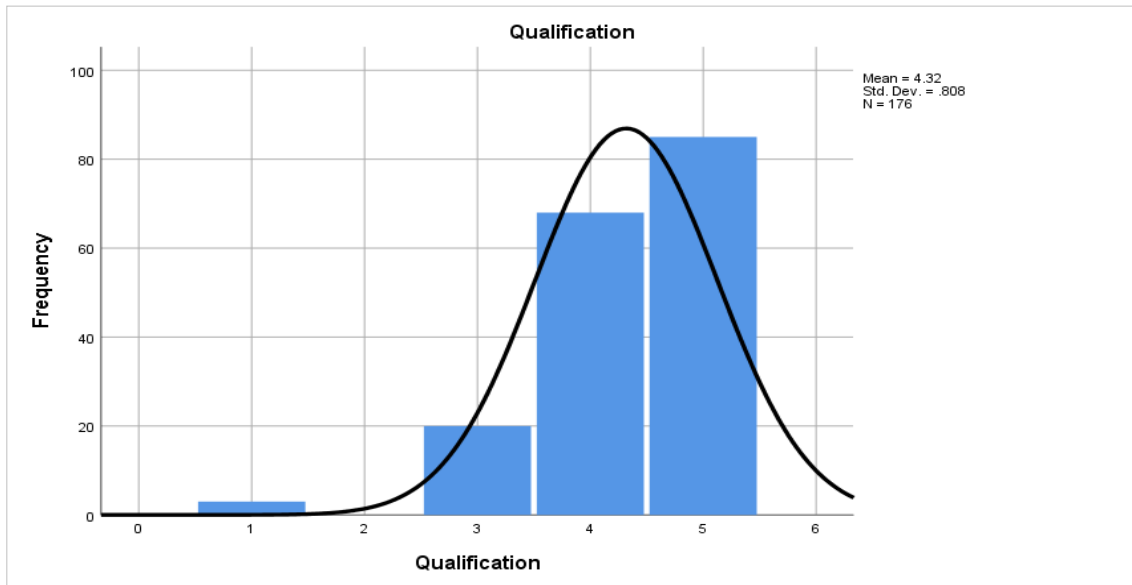
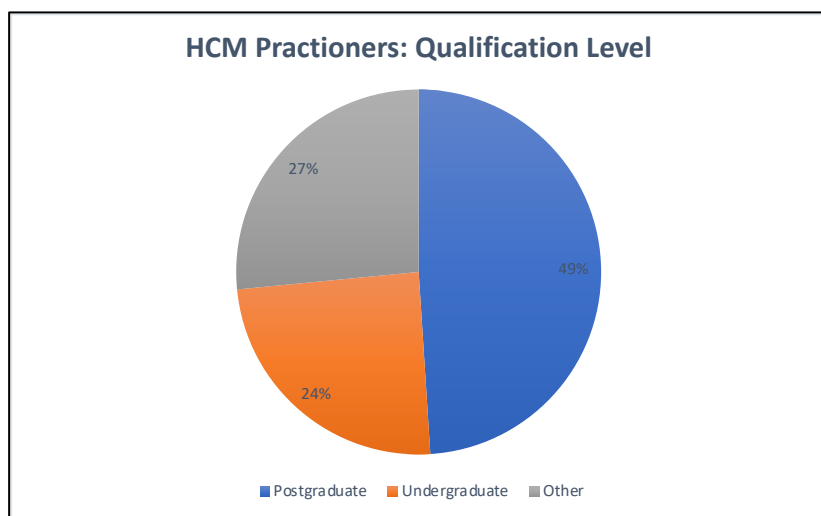


Table 4: Qualification level for all respondents

Qualification		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School	3	1.7	1.7	1.7
	Diploma	20	11.4	11.4	13.1
	Undergraduate degree	68	38.6	38.6	51.7
	Postgraduate degree	85	48.3	48.3	100.0
	Total	176	100.0	100.0	

Figure 5: Qualification level for HCM practitioners



5.2.4. Age and years of experience

The below histograms indicate a normal distribution for both respondents' age as well as their years of experience. It was important to gain this insight as this study required as close a representation of a real-life setting as possible.

Further, it was important for the two histograms to reflect each other as a test for data validity. Overall the two histograms represent an acceptable level of similarity. Differences could in all likelihood be attributed to the duration it took individual respondents to obtain their qualifications as well as ambiguity around the survey question. It is possible that respondents misinterpreted the survey question as "experience in current role/occupation".

A total of 121 (69%) of respondents have been in their positions for 10 years or longer. This serves as further validation of the data as it can be expected that people who are in leadership roles within a firm employing high calibre knowledge workers would have significant levels of experience.

Figure 6: Age distribution for all respondents

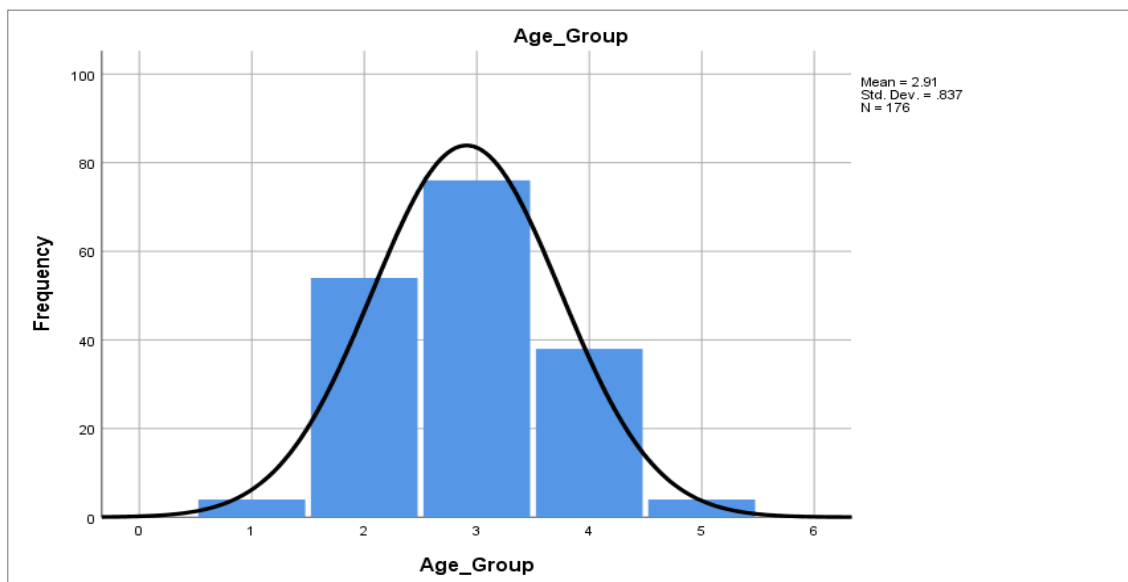
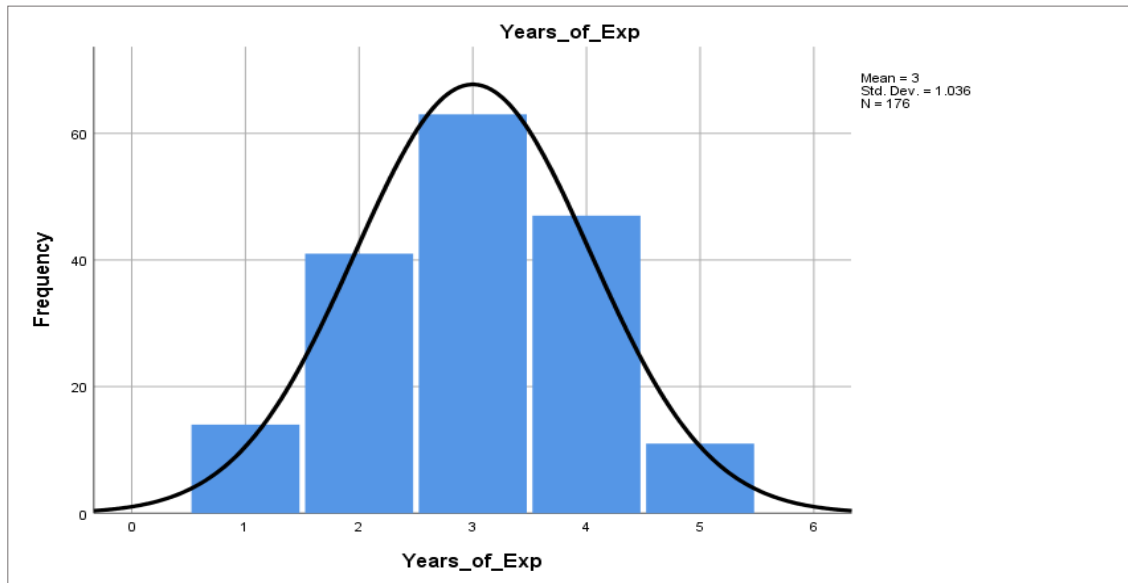


Figure 7: Years of experience distribution for all respondents



5.3. Perceived validity of employee selection methods

To determine if a divergence existed between the perceived validity of employee selection methods used in practice and those that are research-proven, mean ranks for validity perceptions were calculated for each of the 12 employee selection methods. These scores were then ranked from the highest perceived validity to the lowest for the average as well as subgroups of HCM practitioners and line managers.

Table 4 illustrates each of the 12 selection methods mean-ranking by average, HCM practitioner and line manager and as well as the research-proven ranking. The mean ranks were further calculated per subgroup to gain insight into the extent of the differences that possibly existed between the two subgroups. The comparisons are illustrated in figure 8 and summarised in table 5.

Table 5: Research-based validity estimates of selection methods versus perceptions of validity by subgroup

Research Ranking	Employee Selection Method	Average		HCM Practitioners		Line Managers	
		Ranking	Mean	Ranking	Mean	Ranking	Mean
1	General Mental Ability (GMA)	11	2.93	11	3.04	11	2.88
2	Employee Interviews	5	4.05	4	4.10	5	4.03
3	Work Samples Tests	3	4.16	6	3.96	3	4.24
4	Assessment Centers	7	3.52	9	3.33	7	3.60
5	Biodata	9	3.32	7	3.53	9	3.24
6	Academic Grades	10	3.24	10	3.31	10	3.22
7	Years of Education	8	3.39	8	3.39	8	3.39
8	Reference Checks	2	4.27	5	4.08	1	4.34
9	Personality	4	4.14	2	4.24	4	4.10
10	Interests	6	3.90	3	4.20	6	3.79
11	Work Experience	1	4.35	1	4.57	2	4.26
12	Age	12	2.41	12	2.57	12	2.35

Figure 8: Perceived validity ranking of selection method by subgroup

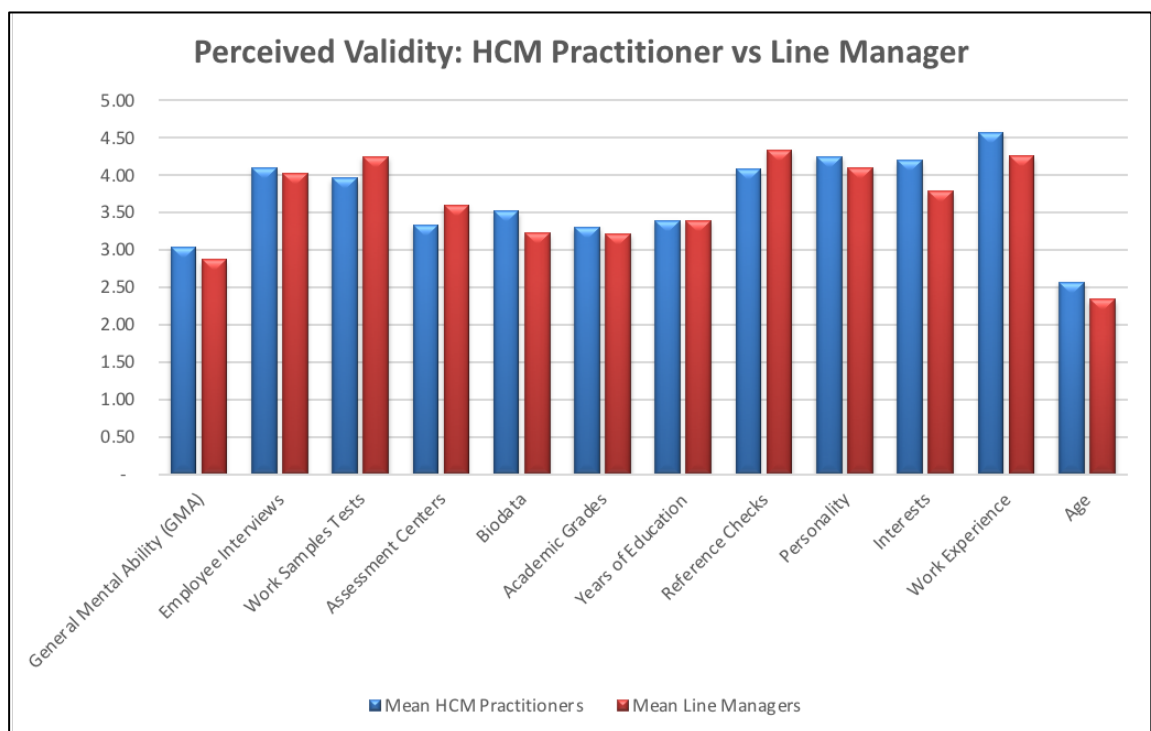


Table 6: Perceived validity ranking of selection methods by subgroup

HCM Practitioner Ranking	Employee Selection Method	Mean	Line Manager Ranking	Employee Selection Method	Mean
1	Work Experience	4.57	1	Reference Checks	4.34
2	Personality	4.24	2	Work Experience	4.26
3	Interests	4.20	3	Work Samples Tests	4.24
4	Employee Interviews	4.10	4	Personality	4.10
5	Reference Checks	4.08	5	Employee Interviews	4.03
6	Work Samples Tests	3.96	6	Interests	3.79
7	Biodata	3.53	7	Assessment Centers	3.60
8	Years of Education	3.39	8	Years of Education	3.39
9	Assessment Centers	3.33	9	Biodata	3.24
10	Academic Grades	3.31	10	Academic Grades	3.22
11	General Mental Ability (GMA)	3.04	11	General Mental Ability (GMA)	2.88
12	Age	2.57	12	Age	2.35

5.4. Frequency of use of employee selection methods

In order to test the correlation between the perceived validity of the designated employee selection methods and the frequency of which respondents make use of them in practice, a Pearson's r correlation test was computed. Interval data obtained from respondents Likert scale responses were divided according to subgroup and have been listed in table 11. This study believed that by interpreting the responses by subgroup, more detailed insight might be gained into the relationships between the constructs. The statistical significance of each independent variable was considered at a 95% confidence level.

5.4.1. Line managers

At a 95% confidence level, ten employee selection methods indicated a significant correlation between its perceived viability by line managers and its frequency of use. Table 7 summarizes the results for this subgroup and provides the significance (p) and correlation (r) for each method and how it's perceived validity correlates to its frequency of use. The number of observations in this subgroup totalled 127 (n).

Table 7: Pearson's r correlation and significance per selection method for line managers

Perceived Validity		Frequency of Use											
		General Mental Ability (GMA)	Employee Interviews	Work Samples Tests	Assessment Centers	Biodata	Academic Grades	Years of Education	Reference Checks	Personality	Interests	Work Experience	Age
General Mental Ability (GMA)	Pearson Correlation	.354**	-.239	0.116	.198	0.019	-.320	-.388	-.021	0.081	-.013	-.042	-.058
	Sig. (2-tailed)	0.000	0.007	0.194	0.026	0.828	0.000	0.000	0.177	0.367	0.208	0.112	0.514
Employee Interviews	Pearson Correlation	-.0107	.361	0.017	-.0135	.302	.0141	0.000	-.063	.182	-.0115	0.133	-.0164
	Sig. (2-tailed)	0.229	0.000	0.853	0.129	0.001	0.114	0.998	0.479	0.041	0.199	0.136	0.065
Work Samples Tests	Pearson Correlation	-.0103	.255	-.0107	-.0133	0.163	.304	.243	0.061	0.050	0.090	.287	-.0886
	Sig. (2-tailed)	0.249	0.004	0.231	0.135	0.066	0.001	0.006	0.494	0.579	0.312	0.001	0.337
Assessment Centers	Pearson Correlation	.299	-.217	-.039	.350	-.042	-.297	-.0160	-.0110	.266	0.021	-.040	0.052
	Sig. (2-tailed)	0.001	0.014	0.660	0.000	0.643	0.001	0.073	0.219	0.002	0.817	0.657	0.563
Biodata	Pearson Correlation	-.0121	0.061	-.036	-.0110	.389	.248	-.017	0.016	.180	0.081	-.074	0.010
	Sig. (2-tailed)	0.177	0.499	0.684	0.220	0.000	0.005	0.851	0.860	0.043	0.364	0.407	0.912
Academic Grades	Pearson Correlation	-.0414	.323	-.259	-.260	.211	.474	0.165	.200	-.051	0.097	.256	-.079
	Sig. (2-tailed)	0.000	0.000	0.003	0.003	0.017	0.000	0.064	0.024	0.569	0.277	0.004	0.380
Years of Education	Pearson Correlation	-.089	.196	-.0149	-.0133	.278	.359	.380	-.028	0.167	.216	.260	0.042
	Sig. (2-tailed)	0.321	0.027	0.095	0.137	0.002	0.000	0.000	0.754	0.060	0.015	0.003	0.639
Reference Checks	Pearson Correlation	-.273	0.138	-.0105	-.081	-.022	0.127	0.139	.463	-.044	-.035	.338	-.192
	Sig. (2-tailed)	0.002	0.122	0.239	0.366	0.807	0.155	0.118	0.000	0.622	0.698	0.000	0.031
Personality	Pearson Correlation	0.002	-.081	-.0139	.339	.284	0.141	-.188	-.0111	.434	0.102	0.006	-.057
	Sig. (2-tailed)	0.983	0.367	0.118	0.000	0.001	0.114	0.034	0.214	0.000	0.255	0.945	0.528
Interests	Pearson Correlation	-.307	0.141	-.317	0.020	0.075	.292	0.088	0.048	.197	.178	.256	-.0140
	Sig. (2-tailed)	0.000	0.113	0.000	0.822	0.400	0.001	0.325	0.594	0.026	0.044	0.004	0.117
Work Experience	Pearson Correlation	-.267	0.104	0.022	0.100	0.101	0.083	0.164	.338	.280	.225	.522	-.316
	Sig. (2-tailed)	0.002	0.245	0.810	0.263	0.259	0.355	0.065	0.000	0.001	0.011	0.000	0.000
Age	Pearson Correlation	-.180	-.0168	-.181	0.087	0.036	0.066	0.087	.298	0.046	0.129	0.019	0.096
	Sig. (2-tailed)	0.043	0.059	0.042	0.329	0.686	0.463	0.331	0.001	0.604	0.150	0.835	0.285

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because at least one of the variables is constant.

Table 7 lists the correlation and significance between the two variables for line managers. The strongest correlation between the two variables was observed for work experience, $r = 0.522$, $n = 127$, $p = 0.000$. Overall, there was a strong, positive correlation between the perceived validity of work experience as an effective predictor of future job performance and the frequency in which it is used by line managers.

Table 8: Pearson's r correlation and significance for work experience for line managers

Correlations			
		Work Experience PV	Work Experience FU
Work Experience PV	Pearson Correlation	1	.522**
	Sig. (2-tailed)		0.000
	N	127	127
Work Experience FU	Pearson Correlation	.522**	1
	Sig. (2-tailed)	0.000	
	N	127	127

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because at least one of the variables is constant.

Academic grades $r = 0.474$, $p = 0.000$ and reference checks $r = 0.463$, $p = 0.000$ showed moderately strong, positive correlations. GMA, employee interviews, assessment centres, biodata, years of education and personality all displayed moderate, positive correlations between their respective perceived validities and their frequency of use.

5.4.2. HCM practitioners

In terms of the HCM practitioner subgroup, three relationships met the condition for significance at a 95% confidence level. Table 9 summarizes the results for this subgroup and provides the significance (p) and correlation (r) for each method and how it's perceived validity correlates to its frequency of use. The number of observations in this subgroup totalled 49 (n).

Table 9: Pearson's r correlation and significance: HCM practitioners

Perceived Validity		Frequency of Use											
		General Mental Ability (GMA)	Employee Interviews	Work Samples Tests	Assessment Centers	Biodata	Academic Grades	Years of Education	Reference Checks	Personality	Interests	Work Experience	Age
General Mental Ability (GMA)	Pearson Correlation	0.275	-.326*	.299	0.255	0.024	-0.204	-.339*	-0.169	.397**	-0.020	-.550**	0.036
	Sig. (2-tailed)	0.055	0.022	0.037	0.077	0.869	0.160	0.017	0.246	0.005	0.890	0.000	0.807
Employee Interviews	Pearson Correlation	-.347*	0.061	-0.086	-.282*	-0.249	-0.060	0.095	.371**	0.105	0.007	0.059	0.006
	Sig. (2-tailed)	0.015	0.679	0.557	0.049	0.084	0.684	0.517	0.009	0.474	0.961	0.689	0.969
Work Samples Tests	Pearson Correlation	0.220	-0.164	.337*	0.210	0.014	0.025	-0.248	-0.199	0.129	-0.176	-0.062	-0.121
	Sig. (2-tailed)	0.130	0.259	0.018	0.147	0.924	0.862	0.086	0.171	0.376	0.227	0.672	0.409
Assessment Centers	Pearson Correlation	0.199	-0.281	0.006	0.210	0.000	-0.032	-0.077	-.399**	-0.013	-0.015	-0.003	-0.179
	Sig. (2-tailed)	0.170	0.051	0.968	0.147	0.998	0.829	0.600	0.005	0.929	0.918	0.981	0.218
Biodata	Pearson Correlation	-0.141	-0.041	0.115	0.175	0.248	0.122	0.176	-0.201	-0.115	-0.113	-0.058	0.020
	Sig. (2-tailed)	0.333	0.778	0.432	0.228	0.086	0.404	0.226	0.167	0.429	0.441	0.691	0.893
Academic Grades	Pearson Correlation	-.292*	-0.163	-0.144	-0.138	-0.199	.354*	-0.183	.389**	-0.100	-0.096	0.213	-0.125
	Sig. (2-tailed)	0.042	0.262	0.324	0.343	0.171	0.013	0.208	0.006	0.496	0.510	0.143	0.391
Years of Education	Pearson Correlation	-0.222	-0.204	0.030	0.057	0.035	0.024	0.150	0.224	0.123	0.108	0.101	0.163
	Sig. (2-tailed)	0.125	0.161	0.837	0.698	0.810	0.871	0.304	0.121	0.399	0.460	0.491	0.263
Reference Checks	Pearson Correlation	-0.273	0.249	-0.107	-.319*	-0.161	0.264	0.124	.519*	0.126	-0.005	0.194	0.160
	Sig. (2-tailed)	0.058	0.084	0.466	0.026	0.268	0.067	0.395	0.000	0.388	0.973	0.181	0.272
Personality	Pearson Correlation	0.228	0.036	-0.261	0.007	-0.104	0.105	-0.076	0.013	0.186	0.146	0.025	-0.242
	Sig. (2-tailed)	0.115	0.803	0.070	0.964	0.476	0.473	0.605	0.931	0.201	0.316	0.867	0.094
Interests	Pearson Correlation	-0.033	0.144	0.059	-0.200	0.025	.440**	0.179	.306*	0.159	0.087	0.198	0.079
	Sig. (2-tailed)	0.821	0.324	0.687	0.168	0.864	0.002	0.218	0.033	0.277	0.552	0.174	0.590
Work Experience	Pearson Correlation	-0.142	-0.176	-.435**	-0.080	0.005	0.214	.386**	0.244	-0.003	0.013	0.216	0.040
	Sig. (2-tailed)	0.331	0.227	0.002	0.583	0.975	0.140	0.006	0.091	0.985	0.931	0.135	0.786
Age	Pearson Correlation	0.172	0.003	-0.238	-0.005	0.017	-0.021	-0.034	.384**	.305*	-0.029	-0.155	0.173
	Sig. (2-tailed)	0.238	0.984	0.099	0.975	0.908	0.889	0.816	0.007	0.033	0.844	0.289	0.235

*. Correlation is significant at the 0.05 level (2-tailed).
 **. Correlation is significant at the 0.01 level (2-tailed).
 a. Cannot be computed because at least one of the variables is constant.

Table 9 lists the correlation and significance between the two variables for HCM practitioners. Reference checks displayed the strongest correlation between the two variables $r = 0.519$, $n = 49$, $p = 0.000$. Further, HCM practitioners indicated that academic grades $r = 0.354$, $p = 0.013$ and work samples tests $r = 0.337$, $p = 0.018$ showed a moderate, positive correlation between their respective perceived validities and frequency of use.

Table 10: Pearson's r correlation and significance: HCM practitioners

Correlations			
		Reference Checks PV	Reference Checks FU
Reference Checks PV	Pearson Correlation	1	.519**
	Sig. (2-tailed)		0.000
	N	49	49
Reference Checks FU	Pearson Correlation	.519**	1
	Sig. (2-tailed)	0.000	
	N	49	49
*. Correlation is significant at the 0.05 level (2-tailed).			
**. Correlation is significant at the 0.01 level (2-tailed).			
a. Cannot be computed because at least one of the variables is constant.			

Table 11: Mean ranking of frequency of use of selection methods

Research Ranking	Employee Selection Method	Average		HCM Practitioners		Line Managers	
		Ranking	Mean	Ranking	Mean	Ranking	Mean
1	General Mental Ability (GMA)	7	2.91	11	2.55	7	2.91
2	Employee Interviews	2	4.38	2	4.39	2	4.38
3	Work Samples Tests	5	3.23	5	3.53	5	3.23
4	Assessment Centers	10	2.32	12	2.22	10	2.32
5	Biodata	12	2.25	10	2.88	12	2.25
6	Academic Grades	9	2.84	6	3.51	9	2.84
7	Years of Education	4	3.26	8	3.33	4	3.26
8	Reference Checks	3	3.96	3	4.04	3	3.96
9	Personality	6	3.10	4	3.69	6	3.10
10	Interests	8	2.89	7	3.33	8	2.89
11	Work Experience	1	4.50	1	4.51	1	4.50
12	Age	11	2.31	9	2.96	11	2.31

Table 12: Perceived validity estimate rankings versus frequency of use of selection methods combined and by subgroup

Research Ranking	Employee Selection Method	Average		HCM Practitioners		Line Managers	
		Percieved Validity Ranking	Frequency Ranking	Percieved Validity Ranking	Frequency Ranking	Percieved Validity Ranking	Frequency Ranking
1	General Mental Ability (GMA)	11	7	11	11	11	7
2	Employee Interviews	5	2	4	2	5	2
3	Work Samples Tests	3	4	6	5	3	5
4	Assessment Centers	7	10	9	12	7	10
5	Biodata	9	12	7	10	9	12
6	Academic Grades	10	9	10	6	10	9
7	Years of Education	8	4	8	8	8	4
8	Reference Checks	2	3	5	3	1	3
9	Personality	4	6	2	4	4	6
10	Interests	6	8	3	7	6	8
11	Work Experience	1	1	1	1	2	1
12	Age	12	11	12	9	12	11

6. Discussion of results

6.1. Introduction

The primary purpose of this research was to determine the possible existence of a divergence between research and practice in employee selection methods utilised by South African technology firms. This study believed that a better understanding of this topic would add to the growing conversation in contemporary literature around the research-practice gap in the greater field of management sciences.

A secondary aim of the study was to offer South African technology firms evidence of the lack of use of tangible and research-proven employee selection methods. Further, this study endeavored to illustrate that through the use of such methods, these firms could potentially increase their ability to make better employee selection decisions in future. Lastly, this study presented the bounded rationality model as a possible cause for this phenomenon and introduced evidence-based management as a possible solution to address the increasing divergence between research and practice.

Based on the evaluation of critical literature as outlined in chapter two, three research questions were proposed in chapter three. This chapter undertakes to provide a critical analysis and interpretation of the results of the data that was obtained by discussing these questions in the following layout: Firstly, this chapter reiterates the importance of effective employee selection in a knowledge economy. The chapter then moves on to briefly discuss the results from research question one, two and three individually before combining their respective insights in section 6.6 titled "Further interpretation and conclusion".

6.2. Effective employee selection in a knowledge economy

Staffing decisions are some of the most important a firm can make (Sutherland & Wocke, 2011). Human capital is usually one of the largest line items on a firm's income statement without including the indirect cost associated with making the wrong staffing decisions. The dawn of the knowledge economy has placed an increased importance on a firm's ability to make effective hiring decisions. For many firms, the knowledge economy has changed the traditional rules of the game. Conventional sources of strength such as capital and labour have been replaced by a firm's ability to innovate, create knowledge and adapt to changes posed by technology (Lee & Trimi, 2016).

The benefits for firms utilising effective selection methods are well documented (Sutherland & Wocke, 2011). The higher the calibre of knowledge worker appointed, the higher the levels of potential innovation and knowledge creation a firm can collectively produce. The effects of the knowledge economy are amplified in high-velocity industries such as the technology industry, where underlying forces change constantly and rapidly (Park, Howard, & Gomulya, 2018). This development has put an even greater importance on a firm's ability to make effective staffing decisions (Kim & Ployhart, 2014). In a knowledge world, the importance of effective recruitment and selection methods to attract and select high-calibre knowledge workers has been elevated to the highest importance.

In this knowledge-driven world, knowledge workers with an ability to adapt will have a higher probability of being successful to a future job requirement (Kim & Ployhart, 2014). Given the rapid changes associated with this period, employees such as these will be an asset and a source of competitive advantage for their firms (Wright et al., 2018). It has become even more important for firms to be able to select employees with a high probability of future job performance. As discussed in chapter two, research indicates that certain employee selection methods are better at predicting future job performance than others. South African technology firms were seen as being highly probable of being employers of knowledge workers. As such, line managers and HCM practitioners tasked with employee selection decisions in these firms were deemed to be good vessels to test for a possible divergence.

Meta-analytic research conducted over eight decades indicate that some traditional popularly-used employee selection methods such as the amount of education, person-job fit, and person-organisation fit have a very low validity of predicting future job performance. Others such as graphology have essentially no validity at all. Yet others such as general mental ability (GMA), are tremendously accurate (Schmidt *et al.*, 2016).

The results of this study suggest that South African technology firms are generally employing employee selection methods with low validities, based on research. In the process, they might unknowingly be creating competitive disadvantages for themselves in a global knowledge era where they need to leverage every advantage they can.

6.3. Research Question 1:

Is there a divergence between the perceived validity of employee selection methods used in practice and those that are research proven?

This research question sought to determine the possible existence of a divergence between the employee selection methods used by line managers and HCM practitioners in practice and those that have been research-proven. This study found evidence that a divergence exists between perceived validity respondents placed on individual employee selection methods and their validity based on empirical research. The findings suggest that those tasked with making employee selection decisions in South African technology firms are not making use of research-proven employee selection methods.

The findings of this study are consistent with that of a similar study conducted in the UK around employee selection methods (Jackson et al. 2018). In addition, it supports findings of studies suggesting that there is an divergence between research and practice in the field of human capital in countries such as US, UK, Australia, Netherlands, Finland, Spain and South Korea (Tenhiälä et al., 2016; Tkachenko et al., 2017).

One of the most significant divergences that came out of the results of this study was around GMA as an employee selection method. As discussed in chapter two, GMA has been proven by numerous meta-analytic studies to be the best-known predictor of future job performance (Hunter & Schmidt, 1996; Ree & Earles, 1992; Schmidt et al., 2016). So universal is the agreement in literature that many scholars have advocated for the GMA to be the main, if not sole employee selection method used by firms (Menkes, 2005; O'Leary et al., 2002). It would thus be expected that large technology firms would utilize this method to some extent when making employee selection decisions.

Results from the study indicate that GMA received the second lowest combined perceived validity score by respondents of the 12 employee selection methods included in this study. GMA received a mean average score of 2.93 with most respondents indicating that they either "strongly disagreed" or "somewhat disagreed" when asked to rank the method in terms of perceived validity as an effective predictor of future job performance.

Line managers gave GMA a combined mean validity of score of 2.88 and HCM practitioners indicated a score of 3.04. Whilst the low score by line managers could potentially be explained by a lack of exposure to the construct, the low score by HCM

practitioners was surprising. Whilst a similar study conducted by Jakson *et al.* (2018) in the UK highlighted a divergence in employee selection methods, the extent of the divergence for GMA was far greater according to the results of this study. For example, respondents in this study ranked GMA fourth overall by laypeople, third overall by HRM qualified respondents and first overall by occupational psychology personnel. Whilst the divergence for many of the other methods were more extreme, it is reasonable to assume that GMA's significance as a proven employee selection method ensured it remained in the top third of selection methods according to the respondents of this study.

A combined mean validity score of 3.04 and an overall ranking of 11 by the 49 HCM practitioners included in this study, suggesting that GMA enjoys very little status amongst HCM practitioners in South African technology firms. In addition to the low perceived validity by respondents, technology firms in South Africa seem to not be valuing GMA as an effective predictor based on how infrequently they are using this method. Combined, the respondents ranked GMA ninth overall in terms of frequency of use. The HCM practitioner subgroup ranked GMA second to last for this construct, four rankings lower than line managers. The results of this study revealed a significant divergence between research and practice for this important method.

Employee interviews, ranked number two according to empirical research and with a high incremental validity if combined with GMA, received a combined ranking of 5th according to respondents of this study. HCM practitioners scored this method slightly higher than line managers in terms of perceived validity with a mean validity score of 4.10 versus 4.03. Interestingly, both subgroups indicated that employee interviews are the second most frequently used selection method in their firms.

Some normality returns for work sample tests. Both research and respondents rank it third for perceived validity whilst the respondents rank it fourth in terms of frequency of use. However, the HCM practitioner subgroup gave work sample tests a mean validity score of 3.96 ranking it slightly lower than the line manager subgroup at number six.

The divergence resurfaces for assessment centers, biodata and academic grades. Ranked number four, five and six respectively according to research, respondents ranked them seventh, ninth and tenth overall for perceived validity. In terms of frequency of use, respondents indicated that academic grades are not used often, scoring ninth overall, biodata is the second worst used method and assessment centers ranked in last place.

So which employee selection methods did the respondents of this study deem to have the highest perceived validity as predictors of future job performance? Work experience received the highest ranking for both perceived validity and frequency of use by the respondents. HCM practitioners indicated that this method has the highest perceived validity as well as indicating that they use it most frequently.

Line managers indicated that this selection method is second overall for them in terms of validity but that they also use it most frequently in their firms. Contradictory, research shows work experience to be a relatively poor predictor of future job performance. This selection method scored second lowest overall for predicting future job performance according to research. In addition, this selection method also had an exceptionally low incremental validity when combined with GMA according to research. The results thus suggest that there is a significant divergence around the perceived validity for work experience as an effective predictor of future job performance according to the respondents of this study.

Respondents ranked reference checks as the second overall in terms of perceived validity and third overall in terms of frequency of use. Line managers indicated that they thought this method was the best for predicting future job performance and indicated that their firms use it quite often, ranking it third. Again, this is not aligned with research, which ranks reference checks in the bottom third of the list and eighth overall for predicting future job performance. Personality, ranked fourth overall for perceived validity, is ranked ninth by research.

Of the top half of the table according to the combined perceived validity mean scores of line managers and HCM practitioners, four selection methods find themselves in the bottom half of the research-based table. The inverse holds true, of the top half of the table of research-proven employee selection methods, four of them are at the bottom of the perceived validity table according to the respondents. In terms of frequency of use, the picture looks virtually identical.

The results of this study suggest that there is a divergence between research-proven employee selection methods and the perceived validity respondents place on them as predictors of future job performance. In addition, the frequency of use of these methods indicates that they are not widely used in practice. This would suggest the existence of a divergence between research and practice in the use of employee selection methods in South African technology firms.

6.4. Research question 2:

Is there a significant difference in the perceived validity of selection methods between HRM practitioners and line managers?

The study suggests that a significant difference in the perceived validity selection methods between HCM practitioners and line managers does not exist. Participants from both subgroups generally had the same perceived validity around the selection methods they deemed to be most effective in predicting future job performance. Although the ranking order does differ, the top six ranked methods for both groups are the same indicating that both subgroups value and subsequently don't value the same selection methods. In addition, they also indicated a virtually identical frequency of use.

The only significant differences were around reference checks. Line managers ranked this method first compared to HCM practitioners who ranked it fifth, although the latter did indicate that they use them as frequently as the former. Work samples testing also found itself at number three for line managers, whilst only being number six for HCM practitioners. Again, both groups indicated they use it with similar frequency. Work experience, reference checks, work samples testing, personability, employee interviews and employee interests achieved the highest mean ranking by both subgroups. Inversely, both subgroups indicated that they had an equal distrust of GMA, academic grades and age as effective predictors of future job performance. In large, the results from the study suggests that differences between the two subgroups are not significant.

When compared to similar studies conducted elsewhere, the results seem similar. As an example, the study conducted by (Jackson et al., 2018) indicated that there seemed to be very little difference in the perceived validity of employee selection methods between laypeople and HRM qualified people and occupational psychology personnel (Jackson et al., 2018).

6.5. Research question 3:

Is there a correlation between the perceived validity and the frequency of use of these selection methods?

Regarding frequency of use, the results of this study were fairly inconsistent across the two subgroups. The results indicated a significant correlation between the perceived validity and frequency of use of ten employee selection methods for line managers. In

contrast, the results indicated a significant correlation between only three employee selection methods for line managers.

The results of this study suggest that line managers are to a large extent aligned on how valuable they deem a selection method to be and how often they utilise them for making their employee selection decisions. Work experience in particular exhibited a strong positive correlation for line managers indicating that not only do line managers perceive this selection method to be a strong predictor of future job performance but also use it often.

Reference checks, number two according to this subgroup for perceived validity also signalled a moderately strong correlation with frequency of use. This would suggest that line managers believe they are frequently using a strong employee selection method with high validity to predict future job performance, thereby assuming that their employee selection decisions are for the most part sound.

In contrast, the results of this study had very little significant findings regarding the correlation between the perceived validity and frequency of use of employee selection methods for the HCM practitioner subgroup. Reference checks was the only selection method that was statistically significant and displayed a strong relationship between its perceived validity and frequency of use for this subgroup. Work samples tests and academic grades, although statistically significant, displayed only a moderate correlation between perceived validity and frequency of use according to HCM practitioners.

6.6. Further interpretation and conclusion

The results from research question 2 and three could hold some significance that could provide additional clarity for research question one. As such, this section endeavours to integrate the insights gained from all three research questions and discuss possible implications by looking at the results as a collective. In addition, this section further aims to reconcile the results for this study to that of the greater discussion in contemporary literature around the divergence between research and practice around the greater field of management sciences.

The results obtained from research question 1 clearly indicates that a divergence exists between the perceived validity of employee selection methods used in practice and those that are research-proven for South African technology firms. Research question 2 indicates that the two subgroups are to a large extent aligned on the perceived validity

of the respective selection methods. However, research question 3 indicates that whilst line managers are reasonably aligned in terms of their perceived validity and frequency of use, little correlation between these constructs exist for HCM practitioners. The results of research question 2 and 3 provide interesting insights that have potential implications for why line managers and HCM practitioners in these firms not heeding proven research that could aid them to remain competitive.

One school of thought could be that line managers and HCM practitioners are doing so because they are not in touch with research. Similar studies conducted elsewhere indicate that this explanation is probable and that this trend is not unique to South Africa (Tenhiälä et al., 2016; Tkachenko et al., 2017; Jackson et al., 2018). Supporting this school of thought are conclusions by studies that highlight the low levels of coverage these methods have received in contemporary literature (Kieser et al., 2015). Line managers, in particular, could be victims of simply not knowing enough around this important domain of HCM.

Rynes *et al.* (2007) found that an important employee selection construct such as GMA enjoyed no coverage in HR magazines over a preceding ten-year period. In their study, an important periodical such as Harvard Business Review (HBR), considered by many to be widely read by practitioners, to have only two articles over the same period stressing the importance of GMA. More recent studies have concluded with similar findings and have stressed the dearth of academic rigor that go into publications that are most likely to be consumed by people in the management sciences domain (Rynes & Bartunek, 2017; Keiser et al., 2015; Harzing & Adler, 2016).

There certainly is sufficient evidence in the literature suggesting that respondents to this study as well as those conducted elsewhere might have been stifled of sound contemporary literature around employee selection methods. In this case, some respondents could very well be suffering from the “bounded rationality model” of decision making.

This would suggest respondents were basing their decisions on inadequate or incomplete information and making them on heuristics rather than sound data (Puranam et al., 2015). The close alignment between the perceived validity and frequency of use of some of the prominent selection methods for line managers, as indicated by research question three, could support this school of thought. Line managers seem to be trusting the selection methods they are using and are using them frequently. Line managers would be the most probable of the two subgroups to display this phenomenon as they

would be the most likely of the two subgroups to be removed from sound literature on employee selection.

As such, these respondents may very well have fallen in the trap of inertia and are relying not only on their own historic competencies and biases but also the structural and procedural historic competencies of their firms. By not challenging them, as well as the status quos of their firms' employee selection policies, they might very well unknowingly be creating a competitive handicap for their firms.

Whilst one would not necessarily expect line managers to have sufficient exposure to academic literature on the topic, one would of HCM practitioners. The proportionately larger divergence for HCM practitioners on an important method such as GMA, as indicated by research question 1, is concerning. As indicated in chapter five, 87% of the HCM practitioner respondents held either a postgraduate or undergraduate degree. One would thus have reasonably expected them to have been exposed to academic literature around employee selection at some point in their schooling.

In this case, one could interpret both research question 1 and research question 2 differently by inferring that some respondents are aware of the contemporary research, but they simply are not heeding what researchers are advising. This concerning trend would suggest that research has lost the trust of those entrusted with its execution in management sciences. This phenomenon serves as a proxy for the greater conversation in contemporary literature around the increasing divergence between research and practice in the greater field of management sciences (Banks et al., 2016; Tenhiälä et al., 2016; Tkachenko et al., 2017).

For some time, researchers have been warning about the emergence of this trend. The work done by these researchers indicate that not only are practitioners not implementing sound academic research but that the issues of greatest importance to practitioners are not being researched by academics (Rynes & Bartunek, 2017). If this is the case, the detrimental repercussions could be significant for both practitioners and academics. Organisations today have an ever-growing need for more effective and sustainable methods of conducting business and academics are increasingly becoming dependent on practitioner resources (Birkinshaw et al., 2016).

There is a third school of thought on the matter. The overall low means given to all the selection methods for research question 1 could indicate that respondents do have a high perceived validity and frequency of use for certain selection methods, but that these

methods possibly were not included in this study. For perceived validity, the average mean score was 3.75 on a 7-point Likert table. Interestingly, the highest mean score was for work experience and was only 4.35.

One would expect line managers to be the primary vessels to test for a possible divergence for this study. These individuals are well positioned as they would be most likely to have some exposure to research through their educational backgrounds and would also be able to give valuable insight into contemporary practice. The generally low overall scores that these 49 respondents awarded to the selection methods is in itself interesting. The highest average mean score by this subgroup was only 4.57, awarded to work experience. In addition, only five selection methods achieving a mean score above 4.00.

This could signal that the selection methods included in this study are indeed removed from the ones they use in practice, further confirming a possible divergence between research and practice in this field. In this scenario, one could agree with previous researchers who have placed an equal share of the blame at the door of academics (Rynes & Bartunek, 2017). They claim it is research who have become so pre-occupied with what they deem to be important, that they have lost touch with practitioners and what society deems important.

In support of this school of thought, one could ask the question: Why hasn't more contemporary research on employee selection methods not been done that were subject to the same academic rigor of the 12 meta-analytic studies included in this study? Especially given the importance of this domain in a changing world. Recent studies are wide-ranging and span from social networks (Hensvik & Skans, 2016), to character-based simulations (Bruk-Lee et al., 2016), to virtual employee selection (Torres & Mejia, 2017). However, none of these studies have been subject to the scrutiny required by meta-analysis and as such cannot be consumed with the same level of confidence.

A fourth school of thought could be that practitioners are struggling to implement the research. Results of research question 1 indicates there is a divergence between research and practice in employee selection methods used according to HCM practitioners in South African technology firms. However, research question 3 suggest that there seems to be little correlation between the selection methods that these respondents value and those they frequently utilise in practice. As HCM practitioners are the primary vessel for employee selection implantation policy within their firms, the results from this study could indicate that the divergence between research and practice

is possibly not a question of knowledge but rather one of implementation.

As discussed in chapter two, the T1 one research concerned with translating science into the development of new models and guidelines has been done through comprehensive meta-analytic studies. This school of thought would suggest that although the benefits of these methods might very well be known, practitioners might be reluctant to advocate for their use as ambiguity around their deployment might exist.

If this is indeed the case, the increased need for T2 research in the field of management sciences could well hold the key to evidence-based management. Research concerned with translating T1 research into every-day practice and decision making could empower practitioners to employ research proven models and frameworks that T1 research has painstakingly unearthed. It could be argued that in this regard, renewed focus should be given on research by researchers who are masters of implementation (Gubbins & Rousseau, 2015; Woolf, 2008).

This lack of alignment between research, perceived validity and frequency of use would suggest that employee selection in South African technology firms is probably not being sufficiently based on significant academic evidence. This study has discussed four possible schools of thought in an attempt to provide some insight into the possible roots of these findings.

In reality, the divergence between research and practice in the context of this study is probably due to a combination of the above mentioned. In either event, researchers have been arguing that there should be a renewed focus on creating a shared value between academics and practitioners. Proponents of translational research maintain that shared value should reach beyond the subject of topic, as researchers and practitioners have a different understanding and utility of data. Instead, they argue that research should aim to bridge “knowing what”, “knowing how” and “knowing why” as these competencies are complementary and have to a large extent remained separated to the detriment of both academics and practitioners (Banks et al., 2016; Garud, 1997).

7. Conclusion

This chapter is a summary of the key theoretical findings of this study. Using these findings, the chapter will then suggest certain implications for management. The chapter then moves on to discuss the limitations of this study before concluding with suggestions for future research.

The purpose of this study was threefold. Firstly, the researcher aimed to gain an understanding of the perceived validity line managers and HCM practitioners place on research-proven employee selection methods in South African technology firms. The second aim of the study was to use the findings around employee selection to add to the growing conversation around the research-practice gap in management sciences. This study hoped to offer EBM as a possible solution to this phenomenon. Thirdly, this study hoped to offer South African technology firms evidence of the benefits of using research-proven employee selection methods, thereby aiding them to remain competitive in an increasingly global knowledge economy.

7.1. Principle findings

Research indicates that firms making use of effective employee selection methods with increased predictive validity of future job performance have a higher probability of employing employees that will have higher job performance and a superior ability to adapt to the changing environment (Russell & Brannan, 2016). The dawn of the knowledge era has brought with it increasing competition for high-calibre knowledge workers, making recruitment and selection some of the most important decisions a firm can make. Comprehensive research has highlighted that some employee selection methods are more accurate at predicting future job performance than others (Schmidt *et al.*, 2016). In spite of the potential benefit firms could gain from their use, findings from this research suggest that practitioners in South African technology firms are not heeding what research is advising.

7.1.1. There is evidence of a divergence between research and practice in the use of employee selection methods in South African technology firms

This study found that line managers and HCM practitioners have a low perceived validity of employee selection methods that have been research-proven to be high predictors of future job performance. Research has indicated that of the main selection methods used, methods such as GMA are tremendously accurate for predicting future job

performance. Others, such as work experience and reference checks, have very little predictive validity, whilst some such as graphology have no predictive validity at all (Schmidt & Hunter, 1998; Schmidt *et al.*, 2016).

This study found that those tasked with employee selection in South African technology firms have a low perceived validity of many of the employee selection methods that sit atop the research-proven list. In comparison, they have a higher perceived validity of employee selection methods that find themselves at the bottom of the list and have been proven to be poor predictors of future job performance.

Possible reasons for the divergence in the context of this study could include the following. Firstly, practitioners could be unaware of contemporary research on the topic. Results from research that investigated the level of coverage employee selection received in HR publications have shown that this important HCM construct received very little coverage in recent years (Harzing & Adler, 2016; Rynes *et al.* 2007). If this is indeed the case, practitioners could be suffering from the “bounded rationality model” of decision making and are making important decisions based on inadequate information (Puranam *et al.*, 2015).

Secondly, practitioners could very well be aware of contemporary research but might not be heeding it. The large divergence between research and practice by the highly-qualified subgroup of HCM practitioners in this study could support this argument. This development would suggest that research has lost the trust of those entrusted with its execution in management sciences. It certainly adds to the growing conversation around this increasing trend the field of management sciences heeding both research and practice to re-establish some middle ground (Banks *et al.*, 2016; Tenhiälä *et al.*, 2016; Tkachenko *et al.*, 2017).

Thirdly, that this increasing divergence could be due to research not staying abreast with contemporary employee selection methods. This would suggest that the lag time to conduct thorough meta-analytic research is to blame for momentary divergences between research and practice. Studies on more contemporary methods have been conducted but are few and lack the academic rigor associated with meta-analysis (Gubbins & Rousseau, 2015; Kepes *et al.*, 2014; Nimon & Astakhova, 2015; Briner & Denyer, 2012).

Lastly, the divergence could be as a result of a lack of practitioner proficiency on how to implement research findings. This study found sufficient evidence that showed there to

be very little correlation between the perceived validity and frequency of use of most of the methods for the HCM practitioners' subgroup. Employee selection methods could potentially serve as an accurate proxy for management sciences as a field. In this case, these findings could add to the greater conversation around the research-practice gap across the domain (Gubbins & Rousseau, 2015).

7.1.2. EBM as a possible solution to the research-practice gap in management sciences

Evidence based practice is well established within the domains of healthcare and medicine (Hamlin, 2002). Whilst it would take time for HCM practitioners to move towards implementing only "best evidence" practices, there is a growing school of thought that is arguing for them become research-minded and to emphasise high-quality research in their professional practice. "EBM is a systematic, evidence-informed practice of management that pays meticulous attention to the quality scientific evidence, the local practice setting and the practitioner's ability to making decisions" (Rousseau & Gunia, 2016, p.7).

The findings of this study could add to the argument by scholars advocating for more research to be done around translating T1 research to every-day practice (Gubbins & Rousseau, 2015; Woolf, 2008). As such, T2 research could very well offer the solution to bridging the gap between high-quality research and the potential challenges practitioners face on implementing their findings.

7.2. Implications for management

The benefits of effective employee selection has been well documented in literature spanning more than 100 years (Schmidt et.al., 2016; Sutherland & Wocke, 2011). Employee selection methods might represent "the greatest technological achievement in industrial and organizational psychology over the past 100 years" (Highhouse, 2008, p.333). A high number of meta-analytic studies on employee selection methods have provided practitioners with sufficient evidence to be trusting the ability of some methods to predict future job performance better than others.

More contemporary employee selection methods might not have been subject to the rigor associated with these studies and thus have not been included in this study. However, the results of this study show that practitioners have a high perceived validity and are frequently using methods that have very little ability to predict future job

performance. A high reliance on methods such as work experience and reference checks are hazardous given their overall low ability to predict future job performance (Schmidt & Hunter, 1998). In contrast, GMA has been subject to the most scrutiny and has been found to be an excellent method for firms to base their selection decisions on (Hunter & Hunter, 1984). By using GMA, that has a validity of 0.65 versus work experience that has a validity of 0.10, managers in South African technology firms could increase the number of successful hires by more than 50% (O'Leary et al., 2002).

Given the competition brought on by increasing global market as well as the down of the knowledge economy, managers of South African technology firms could very well unknowingly be creating a competitive disadvantage for themselves by using selection methods with low predictive validities (Judge & Zapata, 2015). Managers could assist their firms to remain competitive by relying of employee selection methods that have been research-proven to be high predictors of future job performance.

7.3. Limitations of research

Although previous studies have indicated similarities between the perceptions of selection methods across different countries (Anderson & Witvliet, 2008; Jackson et al., 2018; Snyder & Shahani-Denning, 2012), a limitation was that the study only included technology firms in South Africa.

The population for the purpose of this study was all South African technology firms as it was reasonable to deduce that technology firms are high-employers of knowledge workers (Donate & de Pablo, 2015; Stone & Deadrick, 2015). As such, the use of only one sector was a potentially limiting factor. However, the findings of this study should be universally constructive to firms who are employers of knowledge workers.

It was necessary to draw a sample from businesses that are large enough to embark on regular recruitment efforts, employ a high amount of knowledge workers and have a mature selection and recruitment systems in place. To this end, the population only included South African technology firms that employ more than 500 employees. Smaller technology firms could well be more open to newer and less entrenched selection methods. It was however deemed necessary to ensure the sample included firms that had a formal selection policy.

The selection methods included in the study and subsequent survey were limited to those that have been the focus of a meta-analytic study. The purpose of the study was

to determine the divergence between practice and research-proven selection methods. As such only meta-analytic studies were considered as they have been subject to the necessary rigour to render them sound enough to infer from their accumulated scientific evidence (Gubbins & Rousseau, 2015).

7.4. Suggestions for future research

Based on the findings and limitations identified, the following suggestions are made for future research:

This misalignment around the theoretical knowledge of employee selection methods, their perceived validities and frequency of use by both subgroups could potentially signal a form of structural inertia that currently exist in these South African technology firms. A possible avenue for future research could investigate the impact this has on HCM-related organisational decision making in South African firms.

The findings of this study overlap with that of other studies around the divergence between research and practice in the field of management sciences. More research around this topic is required. This study hopes that the findings in the context of South African technology firms drives further efforts to investigate this grand challenge in a broader context.

The findings of this study indicate a clear need for T2 research in the field of management sciences. It is evident that in the field of management sciences, more has to be done translate the abundance of T1 research into every-day practice for organisational decision making. Future research is required on relevant and contemporary business challenges by researchers who are masters of implementation. In so doing, researchers like these could potentially reduce the divergence between research and practice and in the process promote evidence-based decision making in management sciences.

7.5. Summary

The growing divergence between research and practice in management sciences is a fascinating and relevant topic. Employee selection is but one of the domains in the greater field of management sciences that could benefit from a reduced divergence. By addressing this divergence, academics and practitioners can re-establish a symbiotic relationship that could provide enormous benefit to the field. Academics would do well

to ensure their research is relevant and addresses application utility. Practitioners in turn would do well to heed academic advice and in the process assist their firms to remain competitive. This study contributed to the theoretical and practical understanding of the growing divergence between research and practice in the field of management sciences. Research around this topic should be continued in order to advance the understanding of its dynamics and how to overcome its challenges.

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9. APPENDIXES

9.1. APPENDIX 1: ELECTRONIC QUESTIONNAIRE AND CONSENT

Good day,

I am conducting research on the perceived effectiveness of employee selection methods. To that end, you are asked to complete a survey indicating how effective you perceive each method to be as a predictor of future job performance when making a selection decision on hiring a new employee. You will also be asked to indicate the frequency that you make use of each method. There are 12 methods in total.

Your answers will help us better understand what methods are being used in practice. The survey has 15 questions in total and should take no more than 10 minutes of your time. Your participation is voluntary, and you can withdraw at any time without penalty. Your participation is anonymous and only aggregated data will be reported. By completing the survey, you indicate that you voluntarily participate in this research. If you have any concerns, please contact my supervisor or me. Our details are provided below.

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Research Supervisor: Anel Meintjes

Email: anelrdsa@gmail.com

Screening questions

Are you tasked with making or supporting hiring decisions in your firm? This could be in the form of hiring policy formulation of the execution of that policy.

Yes	No
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To enable us to understand the if there are any differences between selection policy formulators and those tasked with execution of that policy, we ask you to please specify your subgroup between line manager and Human Capital Management (HCM) Practitioner.

Line Manager	HCM Practitioner
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Please indicate your age

Male	Female
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Please indicate your age

18-24	25-34	35-44	45-54	55 and over
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Please indicate your years of experience

0-5	5-10	10-15	15-20	20+
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Please indicate your level of qualification

High School	Undergraduate	Postgraduate	Other
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Key definitions

Perceived validity

Effectiveness

Perceived effectiveness and frequency of use of each selection method

General Mental Ability (GMA)

GMA can be defined as the general efficiency with which the brain solves complex problems. A candidate's GMA can be determined by testing cognitive reasoning, problem solving, perception, memory, verbal and mathematical ability to name a few.

Question 1: GMA is an effective predictor of future job performance when making a selection decision

Very strongly disagree	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly Agree	Very strongly agree
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Question 2: How often do you make use of GMA to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
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Employment interviews

For the purposes of this study interviews will be used as a collective term for both structured and unstructured interviews. This method thus includes any structured or unstructured questioning of a candidate by an interviewer.

Question 1: Employment interviews are an effective predictor of future job performance when making a selection decision

Very strongly disagree	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly Agree	Very strongly agree
------------------------	-------------------	-------------------	---------------------------	----------------	----------------	---------------------

Question 2: How often do you make use of employment interviews to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
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Work sample tests

Work sample tests are practical hands-on job simulations of certain elements of a job the candidate would have to perform.

Question 1: Work sample tests are an effective predictor of future job performance when making a selection decision

Very strongly disagree	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly Agree	Very strongly agree
------------------------	-------------------	-------------------	---------------------------	----------------	----------------	---------------------

Question 2: How often do you make use of work sample tests to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
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Assessment centres

Assessment centres require a candidate to travel to a central location to perform wide ranging and pre-defined assessments ranging from leadership, group work and in-basket assessments.

Question 1: Assessment centres are an effective predictor of future job performance when making a selection decision

Very strongly disagree	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly Agree	Very strongly agree
------------------------	-------------------	-------------------	---------------------------	----------------	----------------	---------------------

Question 2: How often do you make use of assessment centres to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
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Biodata

Also referred to as biographical data measures, biodata aims to gain insight into the candidate from past life experiences. Biodata includes empirically developed measures and questions on early life experiences such as hobbies, school achievements, student organisations, sport participation etc.

Question 1: Biodata is an effective predictor of future job performance when making a selection decision

Very	Strongly	Somewhat	Neither	Somewhat	Strongly	Very
------	----------	----------	---------	----------	----------	------

strongly disagree	disagree	disagree	agree or disagree	agree	Agree	strongly agree
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Question 2: How often do you make use of biodata to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
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Academic grades

Academic grades refer to the grades that a candidate achieved in his/her academic studies including school, undergraduate and postgraduate.

Question 1: Academic grades are an effective predictor of future job performance when making a selection decision

Very strongly disagree	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly Agree	Very strongly agree
------------------------	-------------------	-------------------	---------------------------	----------------	----------------	---------------------

Question 2: How often do you make use of academic grades to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
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Years of education

Years of education refer to the aggregate number of years a candidate has spent accumulating schooling and or formal training.

Question 1: Years of education is an effective predictor of future job performance when making a selection decision

Very	Strongly	Somewhat	Neither	Somewhat	Strongly	Very
------	----------	----------	---------	----------	----------	------

strongly disagree	disagree	disagree	agree or disagree	agree	Agree	strongly agree
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Question 2: How often do you make use of years of education to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
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Reference checks

Reference checks are performed in an attempt to determine a candidates past employment performance by making contact with the employer.

Question 1: Reference checks are an effective predictor of future job performance when making a selection decision

Very strongly disagree	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly Agree	Very strongly agree
------------------------	-------------------	-------------------	---------------------------	----------------	----------------	---------------------

Question 2: How often do you make use of reference checks to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
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Personality

Personality measures for the purpose of this study include both Myers-Briggs Type Indicator (MBTI) and five-factor model.

MBTI aims to depict people by their attitude to the world. MBTI batteries test for extraversion versus introversion as well as cognitive preference.

The five-factor model, also referred as the Big Five, attempts to determine a person's

personality by focussing on the big five personality traits Extraversion, Neuroticism, Conscientiousness, Agreeableness and Openness.

Question 1: Personality is an effective predictor of future job performance when making a selection decision

Very strongly disagree	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly Agree	Very strongly agree
------------------------	-------------------	-------------------	---------------------------	----------------	----------------	---------------------

Question 2: How often do you make use of personality to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
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Interests

Interests refer to an alignment of the candidate's vocational interests to that of the organisation or industry.

Question 1: Interests are an effective predictor of future job performance when making a selection decision

Very strongly disagree	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly Agree	Very strongly agree
------------------------	-------------------	-------------------	---------------------------	----------------	----------------	---------------------

Question 2: How often do you make use of interests to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
-------	----------------	-----------	-------	---------------------------

Work experience

Also referred to as job experience, work experience refers to the number of years of previous experience the candidate had on an equivalent of matching job.

Question 1: Work experience is an effective predictor of future job performance when making a selection decision

Very strongly disagree	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly Agree	Very strongly agree
------------------------	-------------------	-------------------	---------------------------	----------------	----------------	---------------------

Question 2: How often do you make use of work experience to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
-------	----------------	-----------	-------	---------------------------

Age

Age is an effective predictor of future job performance when making a selection decision

Very strongly disagree	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly Agree	Very strongly agree
------------------------	-------------------	-------------------	---------------------------	----------------	----------------	---------------------

How often do you make use of age to inform your selection decision?

Never	Not very often	Sometimes	Often	Frequently, if not always
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9.2. APPENDIX 2: ETHICAL CLEARANCE CONFIRMATION

**Gordon
Institute
of Business
Science**
University
of Pretoria

28 June 2018

Van der Merwe Armand

Dear Armand

Please be advised that your application for Ethical Clearance has been approved.

You are therefore allowed to continue collecting your data.

Please note that approval is granted based on the methodology and research instruments provided in the application. If there is any deviation change or addition to the research method or tools, a supplementary application for approval must be obtained

We wish you everything of the best for the rest of the project.

Kind Regards

GIBS MBA Research Ethical Clearance Committee