Industrial and Organisational Psychology in South Africa: Research and Practice.

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I declare that this research report is my own, unaided work. It has not been submitted before for any other degree or examination at this or any other University.

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ABSTRACT

Using two samples, one comprising 864 SIOPSA abstracts of research and another comprising industrial psychology practitioners who participated in an online electronic survey (N=14) and in telephonic interviews (N=23), the study explored three main issues. First, the trends regarding industrial psychology research themes in research presented at SIOPSA conferences from 2000 to 2011. Second, the extent to which these themes matched research needs as perceived by industrial psychology practitioners in South African organisations was examined to determine their degree of congruence with practical business challenges. Third, the study explored the future research themes in industrial psychology as perceived by industrial psychologists in organisations.

Results indicated that there was a general proportional increase in the amount of research presented at SIOPSA conferences in various global categories of industrial psychology across the 12-year period. Personnel psychology, organisational psychology and psychological assessment were the most commonly covered global areas in the research presented at SIOPSA conferences. Results revealed that there was congruence between research presented at SIOPSA conferences and the prevailing needs among practitioners in South African organisations. Despite this congruence, it was shown that the areas being researched on are not effectively addressing practical organisational issues or assisting in theory development for use in organisations. Additionally, the findings showed that the future research areas proposed by industrial psychology practitioners span all global themes in industrial psychology except for consumer psychology.

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CHAPTER 1: INTRODUCTION AND RESEARCH OUTLINE

1.1. Introduction

Industrial/organisational psychology is a specialised field within the broader field of psychology that focuses on the workplace or organisations (Van Vuuren, 2010). The historical origins of industrial/organisational psychology as a discipline and profession are well documented (e.g., Landy & Conte, 2007; Shreuder & Coetzee, 2010; Van Vuuren, 2010) and, it has been argued, since its origins the discipline and its research endeavours have progressed in addressing the ever-changing needs of societies and organisations and in generating new knowledge for dealing with human issues in organisations (Shreuder & Coetzee, 2010). The discipline emerged when psychologists in the United States began applying psychological principles to solve work-related human problems (Van Vuuren, 2010). The discipline began to advance as new and diverse workplace problems arose and led to the development of new models and interests in dealing with people-related workplace problems (Van Vuuren, 2010).

At organisational level, industrial/organisational psychology is considered one of the most critical fields to human welfare due to the fact that human beings spend most of their lives involved in some form of work activity in small, large, public, private, profit-driven and non-profit driven organisations (Landy & Conte, 2007; Van Vuuren, 2010). Given the preceding statement, it is a safe conclusion that people-related problems in the workplace provide industrial/organisational psychology with the reason for its existence (Van Landy & Conte, 2007; Vuuren, 2010). Industrial/organisational psychology considers not only people but also the context within which the people work, that is, understanding people within the context of the place they work (Landy & Conte; Moalusi, 2001). It has been argued that industrial/organisational psychologists facilitate responses to issues and problems at work by serving as advisors and catalysts for business, industry, labour, public, academic, community, and health organisations (Landy & Conte, 2007). Landy and Conte (2007) state that industrial/organisational psychologists are able to accomplish this facilitation through their roles as scientists who derive principles of individual, group, and organisational behaviour through research; as consultants and staff psychologists who develop scientific knowledge

and apply it to the solution of problems at work; and as teachers who train in the research and application of industrial/organisational psychology.

As argued by Moalusi (2001), it is when industrial/organisational psychologists pay attention to the workplace that they are able to accomplish their mandate as described above. With reference to the South African workplace, Moalusi (2001) states that paying attention to the issues pertinent to the South African workplace will facilitate the much needed balance between theory and practice, between ideal and reality. Therefore the key question to be asked regards the extent to which South African industrial/organisational psychology research has been paying attention to the South African workplace. Shreuder and Coetzee (2010) state that several researchers in South Africa have questioned the extent to which industrial/organisational psychology was needs-driven and problem oriented (Augusttyn & Cillié, 2008; Moalusi, 2001; Pietersen, 2005; Schreuder, 2001; Van Vuuren, 2006; Veldsman, 2001).

Given this background, it is important to explore the research trends in industrial/organisational psychology in South Africa and the extent to which the research has been responsive to the needs of practitioners in organisations. In other words, has industrial/organisational psychology been relevant to those it serves, namely, practitioners in organisations or the organisations themselves (Van Vuuren, 2010). The relevance of industrial/organisational psychology as a discipline and profession is determined by how responsive it has been to practical organisational issues (Van Vuuren, 2010). Three issues are highlighted with reference to the preceding statements. First, industrial/organisational psychology needs to be relevant. This means industrial/organisational psychologists must study current problems and not those of yesterday (Landy & Conte, 2007). Second, industrial/organisational psychology needs to be useful, that is, the value the discipline adds is in putting theories and research findings into action (Landy & Conte, 2007). Third, industrial/organisational psychology needs to be grounded in the scientific method. The confidence that society and organisations have in the discipline and profession is based on this. Systematic observation, development and testing of hypotheses, and logical connection

between data and its interpretation are pivotal to the reputation of the discipline and profession in research and practice (Landy & Conte, 2007).

1.2. Research outline

The second chapter of this report provides a literature review of the issues relating to industrial/organisational psychology research and practice in South Africa and internationally. Key terms, for example industrial/organisational psychology, discipline and profession are defined in order to contextualise them within the present study. Debates associated with the research-practice gap, the relevance-rigour model and the scientist-practitioner model are discussed. The final section of Chapter two outlines the research questions that are the focus of the current study.

Chapter three describes the methodology employed to address the research questions noted in Chapter two. Chapter four details the results of the research and Chapter five provides a detailed interpretation and discussion of the results, addresses the limitations of the present research and outlines recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

A perusal of literature on management research shows that management scholars and commentators have expressed concerns about the relationship between management research and management practice. These concerns are in regard to the lack of synergy between research and practice, the failure of research to meet the needs of various stakeholders especially practitioners in organisations, the degree of relevance of management research to management practice in organisations, the extent to which management research should relate to practice issues, and theoretical and methodological rigour on the one hand and applied relevance on the other (Abrahamson & Eisenman, 2001; Hodgkinson, Herriot & Anderson, 2001; Huff, 2000). At the core of these issues is the extent to which management research targets and addresses the practical needs of practitioners or managers in organisations.

Within the field of industrial/organisational psychology, European (e.g., United Kingdom, the Netherlands & Germany) and American scholars have expressed similar concerns specifically arguing that a gap exists between industrial/organisational psychology research and practice in these parts of the world (e.g.,Anderson, Herriot & Hodgkinson, 2001; Hodgkinson, Herriot & Anderson, 2001). South African scholars have argued that a widening gap has developed between industrial/organisational research and practice in South Africa (Augustyn & Cillié, 2008; Pienaar & Roodt, 2001; Shreuder & Coetzee, 2010; Veldsman, 2001). The purpose of this study is to explore and examine the nature of this perceived gap within the South African context with particular attention to the extent to which industrial/organisational psychology research has been addressing the needs of industrial/organisational psychology practitioners in South African organisations. This is achieved by focusing on the peer-reviewed abstracts of research presented at SIOPSA (Society for Industrial and Organisational Psychology of South Africa) conferences during the last twelve years (2000 to 2011). Before exploring extant literature on this subject, relevant definitions that place the present study in perspective are discussed briefly.

2.2. Definitions of Industrial/Organisational Psychology

In South Africa psychologists who specialise in the psychology of work and human behaviour in organisations are referred to as industrial and organisational psychologists. However, their registration category with the Health Professions Council of South Africa (HPCSA, 2010) is industrial psychologist. For the purposes of the present study, these psychologists are referred to as industrial psychologists, and their discipline and profession as industrial psychology (Veldsman, 2001).

Industrial psychology is defined as the study of human behaviour in organisations (Cascio, 2001); the study of human behaviour related to work, organisations and productivity (Cascio, 2001 cited in Shreuder & Coetzee, 2010); the scientific study of people within their work environment (Landy & Conte, 2007); the application of psychological principles, theory, and research to the work setting (Landy & Conte, 2007); the application of psychological knowledge, facts, principles, theory and research to the work environment (Van Vuuren, 2006). An examination of these definitions leads to the conclusion that industrial psychology is a specialised domain of academic study and practical or professional work concerned with human behaviour in the workplace (Van Vuuren, 2006). It has been argued, however, that industrial psychology spans beyond the organisation owing to the existence of factors that influence human organisational behaviour that are external to organisations- for example, family responsibilities, labour legislation and culture (Landy & Conte, 2007; Van Vuuren, 2010).

Industrial psychology has two main objectives which can also be distilled from the above definitions: firstly, to conduct research aimed at acquiring in-depth knowledge and understanding of human behaviour related to work, productivity and organisations (Cascio, 2001; Rothman & Cilliers, 2007; Shreuder & Coetzee, 2010; Van Vuuren, 2006; Van Vuuren, 2010). Secondly, the application of such knowledge to improve the effectiveness of individuals, groups and entire organisations and by so doing improve the quality of life and level of psychological well-being of individuals and organisations (Cascio, 2001; Rothman & Cilliers, 2007; Shreuder & Coetzee, 2010; Van Vuuren, 2006). Rothman and Cilliers (2007,

p. 10) summarise the primary role of industrial psychology as follows: "the primary task of industrial/organisational psychology is the application of psychological principles and research to workplace phenomena". Additionally, these objectives address the question "What do industrial psychologists do?" The Australian College of Organisational Psychologists (COP) considered the following to be the best response: "Organisational Psychology is the science of people at work. Organisational psychologists specialise in analysing organisations and their people, and devising strategies to recruit, motivate, develop, change and inspire" (cited in Cable & O'Driscoll, 2010, p. 12). The United States of America Department of Labour online network of job information (cited in Cable & O'Driscoll, 2010, p. 13) proposes a broader response stating that industrial psychologists:

> Apply principles of psychology to personnel, administration, management, sales, and marketing problems. Activities may include policy planning, employee screening, training and development, and organisational development and analysis. May work with management to reorganise the work setting to improve worker productivity

With reference to the research-application relationship in industrial psychology, it has been argued that industrial psychologists are trained to be both scientists and practitioners (Landy & Conte, 2007; Riggio, 2009; Shreuder & Coetzee, 2010; Van Vuuren, 2006). Based on the definitions of industrial psychology given above, it is concluded that industrial psychology has two distinct yet inter-linked dimensions: the research dimension and the practice dimension. It is also concluded that for industrial psychology to make a meaningful impact these two dimensions must interact, with each dimension informing the other on research and practice imperatives. A pertinent point to note is that the definitions clearly indicate that industrial psychology has specific goals- improving individual, group and organisational well-being, effectiveness and productivity- and that for these goals to be accomplished industrial psychology research and practice must be practically relevant to prevailing workplace issues. Conversely, if industrial psychology research and practice are not relevant to workplace phenomena, then individual, group and organisational effectiveness are most likely not to be realised. Briner and Rousseau (2011) encapsulate this argument by stating that even when conducted by university-based researchers or academics, industrial psychology research is grounded in problems emanating from organisational contexts. This

means that the very existence of industrial psychology research is a result of organisational phenomena and that industrial psychology must be aware of current developments in organisational settings in order to conduct relevant and value-adding research (Landy & Conte, 2007).

2.3. Industrial/Organisational Psychology: discipline, science and profession

Scholarly literature on industrial psychology describes this branch of psychology using three specific terms: discipline, science and profession (Renecle, 2001; Van Vuuren, 2006; Veldsman, 2001). These three terms illuminate the contextual meaning of two key dimensions that are the focus of this study, that is, research and practice in industrial psychology. A discipline is a branch of instruction or learning (The English Illustrated Dictionary, 2005) and the discipline of industrial psychology is viewed both as a "science" and a "profession" (Van Vuuren, 2006). As a science, industrial psychology is concerned with knowledge development, knowledge generation or knowledge production (Pietersen, 2005; Rupp & Beal, 2007; Van Vuuren, 2006, 2010). Industrial psychologists are scientists who derive principles of individual, group, and organisational behaviour through research (Landy & Conte, 2007). As a profession, industrial psychology focuses on knowledge application (Van Vuuren, 2006). As a profession, industrial psychology has been referred to as professional practice (Rupp & Beal, 2007). In some cases, the profession has been named "industrial psychologist" or just "psychology" (Benjamin & Louw-Potgieter, 2008; Veldsman, 2001). According to Abbott (1988, cited in Benjamin & Louw-Potgieter, 2008, p. 117), a profession is "an exclusive occupational group that applies relatively abstract knowledge to human problems". This means that a profession is characterised by the application of knowledge.

The "science" or "scientist" dimension implies that industrial psychology systematically assembles knowledge through research and the application of rigorous and meticulous scientific methods (Van Vuuren, 2006, 2010). This scientific dimension is also called "theory" or "research" (Augustyn & Cillié, 2008; Landy & Conte, 2007). The "practitioner" dimension relates to the application of this knowledge to work settings in order to identify and manage specific people-related business issues and in the process "…create new

knowledge through interaction, reflection and evaluation" (Van Vuuren, 2006, p. 4). It is apparent that the research dimension of industrial psychology is the "scientific" arm and the application or practice dimension is the "practitioner" arm as described by Anderson et al., 2001.

Applying the definition of a discipline as a branch of instruction and learning, it follows that it encompasses the accumulation of knowledge through research. According to Renecle (2001), a profession applies the discipline. Abbot (1988, as cited in Benjamin & Louw-Potgieter, 2008, p. 117) defines a profession as "an exclusive occupational group that applies relatively abstract knowledge to human problems". With these definitions in mind, it is worth quoting the description of a profession by Benjamin and Louw-Potgieter (2008, p. 117):

> Professions generally have high status and rewards, require specialised knowledge that presupposes long and expensive training, and are difficult to enter. One of the most powerful features of a profession is that it exercises an exclusive right over certain work activities.

As mentioned previously, industrial psychology is a specialised field (Van Vuuren, 2006, 2010), and involves a long period of education and training, including an internship. Industrial psychologists in South Africa require specialised knowledge in areas such as psychometric assessment, ergonomics and organisational behaviour. Based on the Health Professions Act (Act No. 56 of 1974), psychologists have exclusive rights over certain psychological acts. Amongst these, use of psychometric tests is arguably most relevant to industrial psychologists. However, in practice, industrial psychologists do not have exclusive rights to the psychological acts reserved for psychologists. Psychometrists are also legally allowed to practise psychological assessment. In addition, there is a great deal of overlap in the work roles of industrial psychologists and human resources management practitioners who are not registered as psychologists. This undermines industrial psychology as a profession as described above by Benjamin and Louw-Potgieter (2008). The following assertion by Renecle (2001) is graphic in its portrayal of industrial psychology as anything but a field of professional practice:

> While the place of the discipline in enhancing the world of work is certain, the same cannot be said for Industrial Psychology as a profession in South Africa. If a profession is an occupation requiring specific, specialised education (Fowler & Fowler, 1966), then Industrial Psychology in South Africa is clearly not a profession (Renecle, 2001, p. 22).

In the above statement, Renecle (2001) is referring specifically to industrial psychology as a profession and not as a discipline. He acknowledges the role of the discipline by stating that "unequivocally, Industrial Psychology as a relevant discipline or, more specifically, the application of the principles of human behaviour in the workplace has, and will continue to have, a central impact on the human condition" (Renecle, 2001, p. 22).

"Profession" refers to a select and distinct group of people that applies knowledge, principles and facts from a discipline to human problems (Abbot, 1988, cited in Benjamin and Louw-Potgieter, 2008). Therefore, practising a profession involves applying knowledge. This is in agreement with definitions by Pietersen (2005) and Van Vuuren (2010) who define a profession as a knowledge application enterprise. A profession applies knowledge because it "…presupposes long and expensive training…" and has prerogative over "certain work activities" or "expert activities" (Benjamin & Louw-Potgieter, 2008, p. 117). This is summarised as follows: a profession is founded on the application or utilisation of knowledge generated by the discipline; any mention of a profession must of necessity relate to application of the relevant knowledge; and that this application or utilisation of knowledge relates to what is called professional practice (Benjamin & Louw-Potgieter, 2008; Renecle, 2001).

Renecle (2001) questions industrial psychology's status as a profession for several reasons. First, he argues that industrial psychology in South Africa is not a profession because individuals who are not registered as industrial psychologists are applying the discipline and its principles. Industrial psychology principles are subsumed in several other professions such

as human resources management and management practices, such that people who have never studied industrial psychology are familiar with them. Although industrial psychologists are statutorily regulated by the Health Professions Council of South Africa, other people working in the field are free from regulation. Renecle (2001) argues that professional status is further undermined by the fact that very few industrial psychologists are involved in the structures of the profession and many industrial psychologists have de-registered from the regulatory bodies because they find no benefit from being registered. Moreover, some industrial psychologists remain registered only to keep their titles as industrial psychologists. It may be concluded that industrial psychologists do not possess exclusive rights over activities that are supposed to be their exclusive domains of expertise.

2.4. Industrial psychology: the research-practice divide

Despite the recognition that industrial psychology research and practice must collaborate, it has been argued that a widening gap has developed between industrial psychology research and practice in South Africa (Augustyn & Cillié, 2008; Pienaar & Roodt, 2001; Shreuder & Coetzee, 2010; Veldsman, 2001). Scholars in Europe and the United States have expressed similar concerns regarding the existence of the research-practice gap in these parts of the world (Hodgkinson et al., 2001). In South Africa, the gap between research and practice is summarised in the following statement by Augustyn and Cillié (2008):

> In academic circles, those who try to apply knowledge in their teaching and consulting to organisations are often (almost bizarrely) labelled 'practitioners', while their colleagues who publish (irrespective of the quality or the usefulness of the publications) are labelled 'academics' (p. 71).

It has been argued that traditionally, scholarly and robust research informed best professional practices in the design and implementation of effective industrial psychology interventions (Anderson, Herriot & Hodgkinson, 2001; Hodgkinson, Herriot & Anderson, 2001). Furthermore, practice in industry reciprocated by instigating new research avenues (Anderson et al., 2001; Hodgkinson et al., 2001). Indeed, one of the hallmarks of industrial psychology since its inception has been "the high level of synergy between research and practice" (Anderson et al., 2001, p. 392). This demonstrates the historical synergistic efforts between

researchers and practitioners in industrial psychology (Anderson et al., 2001; Hodgkinson et al., 2001). However, Anderson et al. (2001) and Hodgkinson et al. (2001) make the following observations: analyses of published research in Britain going back 50 years from 2001, revealed a substantial decline in research contributions from practitioners. Collaborative publications between researchers and practitioners remained conspicuously low and there was an astronomical rise in the number of published articles co-authored by researchers alone. There was a strikingly significant decline of published research where all authors are practitioners "to the point of virtual extinction" (Hodgkinson et al., 2001, p. 43). Coming back to the South African scenario, Pietersen (2005) states that 97% of research articles published in the SA Journal of Industrial Psychology in the period 1994 to 2003 were authored by researchers based at academic institutions. This shows a general lack of collaboration between practitioners and researchers, and it validates the assertion by Augustyn and Cillié (2008) that academics and practitioners "keep their pets, have their fun, suffer their delusions, keep their secrets, and ask their questions" (p. 71).

Briner and Rousseau (2011) state that industrial psychologists are not a unified group of co-members of the same discipline, rather, researchers and practitioners are distinct communities of interest, knowledge and social connections. In an analysis of the scientist-practitioner model, Rupp and Beal (2007) corroborate Briner and Rousseau's (2007) observation by indicating that within the field of industrial psychology there are practitioners, scientists, scientist-practitioners and practitioner-scientists. This may explain the existence of descriptions such as the research-practitioner dimension, the research base of industrial psychology and the practitioner arm of industrial psychology. The research and practice dimensions of industrial psychology have been referred to as the "scientific and practitioner" wings (Anderson et al., 2001, p. 392); "science and practice" of industrial psychology (Augustyn & Cillié, 2008, p. 70); "the researcher, or academic and practitioner wings" (Hodgkinson et al., 2001, p. 45); "the theory and practice of industrial psychology" (Augustyn & Cilliè, 2008, p. 70-71; Moalusi, 2001, p. 20). Dunnette (1990) refers to these two domains as "the two worlds of industrial and organisational psychology, the academic and non-academic- the science and practice" (cited in Augustyn & Cilliè, 2008, p. 70).

The researcher-practitioner divide has been accompanied by debate on whether, how and to what extent industrial psychology practice should influence industrial psychology research or science (Rupp & Beal, 2007). There are mixed views and arguments regarding whether researchers or practitioners should drive the research agenda (Symon, 2006). Some industrial psychologists argue that science (research) must exert considerable influence on practice not vice-versa (Rupp & Beal, 2007). Others argue that practitioners must consult scientific literature to implement effective workplace systems and researchers must take their cues from practitioners in identifying relevant research issues (Rupp & Beal, 2007). It has been argued that research agendas instigated by practitioners raise ethical and control issues and may possibly stifle innovation (Symon, 2006). It has also been suggested that industrial psychologists need to ask themselves whether researchers are better custodians of the research agenda than practitioners (Symon, 2011). It is not the focus of the present study to conduct an incisive and comprehensive analysis of these arguments but they are highlighted here to demonstrate the debates regarding the researcher-practitioner divide in industrial psychology.

The various labels attached to the research and practice domains of industrial psychology, as given above, suggest the existence of a gap between the two domains. Literature is replete with references to the gap, divide, schism or rift between industrial psychology research and practice. For example, "science-practice gap" (Garman, 2011, p. 129); "science to practice divide" or "the science-practice divide" (Church, 2011, p. 126 & 127); "research–practice gap or divide'' (Briner & Rousseau, 2011, p. 6); "practitioner-researcher divide" (Anderson et al., 2001, p. 391); "researcher-practitioner divide" (Anderson et al., 2001, p. 409); "the divide between theory and practice" (Augustyn & Cillié, 2008, p. 73); "tension between the science and practice sides" of industrial/organisational psychology (Augustyn & Cillié, 2008, p. 72); "the scholar-practitioner perspective" (Rupp & Beal, 2007, p. 36); "…a potential serious schism exists between the two worlds of industrial and organisational psychology" (Dunnette, 1990, p. 10 cited in Augustyn & Cillié, 2008). Apart from suggesting that there is a rift between research and practice in industrial psychology, it may be argued that these descriptions also suggest the absence of interaction between research and practice. The absence of such interaction further suggests that the two domains engage in separate activities without sufficient regard to matters that are important to the other.

Given the various terms used to refer to the research and practice arms of industrial psychology, the present study will refer to them as the research and practice dimensions of industrial psychology. The research-practice or researcher-practitioner divide in industrial psychology is characterised by several issues and members of each of the two dimensions harbour reservations and stereotypes about the other (Anderson et al., 2001). The issues that are characteristic of each dimension are explored in the following section.

2.5. Evidence-based practice in industrial psychology

Industrial psychology practitioners accuse researchers of conducting redundant research and churning out research articles that render little or no assistance to solving practical workplace problems (Augustyn & Cillié, 2008). A counter-argument poses the question, "Should academics necessarily be interested in practice?" (Symon, 2011, p. 170). According to Symon (2011), "there is a very strong assumption that industrial psychology is an applied discipline and that industrial psychologists ought to be interested in the application of ideas" (p. 170). This statement suggests that defining industrial psychology as an applied discipline is based on assumption and that researchers do not always undertake research having in mind knowledge application as the ultimate goal. Symon (2011) further argues that there are instances where industrial psychology researchers are interested in examining an issue for its own sake and not to prompt change. But the fact that the research is called "industrial/organisational" psychology research means that it has a strong bearing on practice in organisational settings and that researchers cannot conduct applied research without an understanding of work contexts (Rupp & Beal, 2007). Therefore it is argued that the relevance and usefulness of industrial psychology research lies in investigating practical organisational issues (Landy & Conte, 2007).

On the other hand researchers accuse practitioners of not contributing to the knowledge development endeavour and of implementing psychological interventions devoid of sound theory and evidence (Anderson et al., 2001; Augustyn & Cillié, 2008; Hodgkinson et al., 2001). The crux of this can be traced back to the notion of evidence-based practice. Briner and Rousseau (2011) observe that industrial psychology researchers and practitioners each

value their own knowledge sources over the other's, and this raises concerns regarding the quality of the collaboration between the two. Consequently, the findings raise doubts regarding the extent to which researchers and practitioners in industrial psychology collaborate in a way that fosters evidence-based practice. Evidence-based practice fuses the practitioner's expertise with external and local-context evidence from research. It is a systematic way of integrating evidence into all practice or management decisions and interventions (Briner & Rousseau, 2011). It is difficult to engage in evidence-based practice without access to relevant research evidence in peer reviewed journals (Briner & Rousseau, 2011). Furthermore, evidence-based practice must not just be based on any evidence or researcher-oriented evidence, but on practice-oriented evidence (Briner & Rousseau, 2011). Therefore industrial psychology research should be relevant to industrial psychology practice (Landy & Conte, 2007). The present study set out to explore and examine the match between industrial psychology research in South Africa and the practice of industrial psychology in South African organisations in the last twelve years (2000 to 2011) with particular focus on research presented at SIOPSA conferences.

2.6. Relevance-rigour debate in industrial psychology

Practitioners view researchers as concentrating on methodological rigour at the expense of real world people-related business issues whereas researchers accuse practitioners of blindly adopting "the latest fads, regardless of theory or evidence" (Anderson et al., 2001, p. 392). This argument has been referred to as the rigour-relevance gap or the gap between theory and methodological rigour, and applied relevance (Hodgkinson et al., 2001). The rigour-relevance debate is best encapsulated in figure 1.

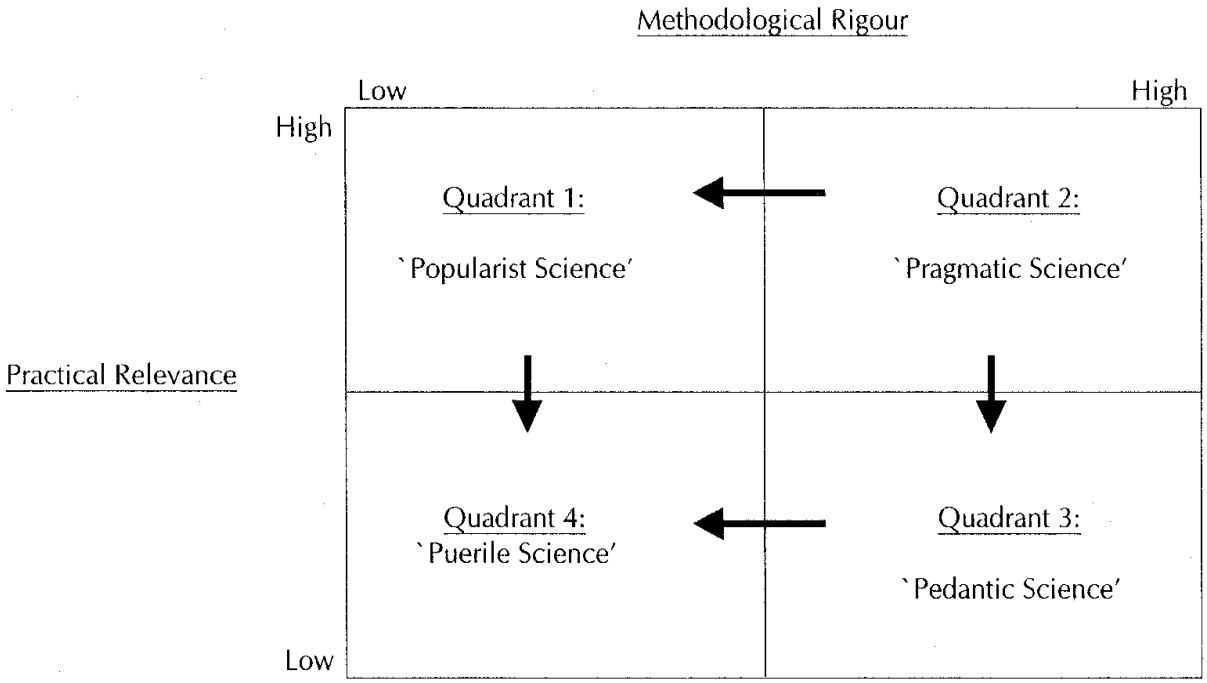

Figure 1. The Rigour-relevance Model (Adapted from Anderson et al. 2001, p. 394)

The arrows in the model above show a shift away from pragmatic science towards other forms of science (Anderson et al., 2001). Quadrant 1 is where practical relevance is high but methodological rigour is low, and this generates popularist science, also called junk science (Landy & Conte, 2007), addresses a practically relevant theme without applying sufficient rigour and therefore the findings lack credibility (Anderson et al., 2001). Quadrant 2 represents pragmatic science where practical relevance and methodological rigour are high (Anderson et al., 2001). Industrial psychology research that emphasizes high methodological rigour and practical relevance generates pragmatic science and pragmatic science addresses questions of practical relevance using robust methodological techniques (Anderson et al., 2001). Pedantic science is generated when methodological rigour is high and practical relevance is low (Quadrant 3). This is characteristic of research that is meticulous in design and uses sophisticated analyses without practically addressing issues of current organisational relevance (Anderson et al., 2001). This has been described as irrelevant science and examines an unimportant topic with meticulous research (Landy & Conte, 2007). Puerile science emerges when researchers undertake research on issues of low practical relevance to organisations and do so using research designs and methods lacking in rigour (Anderson et al., 2001). According to Anderson et al. (2001, p. 395), puerile science "ruins the reputation

of industrial/organisational psychology". Puerile science has been labelled "hopeless science" which studies an "unimportant topic with shoddy research" (Landy & Conte, 2007, p. 24). It is beyond the scope of the current study to apply the rigour-relevance model or to evaluate South African research using the model. However, the model has been briefly discussed to highlight some of the pertinent issues within the industrial psychology research-practice gap debate.

According to Augustyn and Cillié (2008), researchers, driven by the need to publish research articles, tend to be focused on the number rather than the relevance of their publications. In addition, it has been argued that research publications lack compelling arguments in support of the relevance and merit of the research questions and findings to applied contexts (Augustyn & Cillié, 2008). Consequently, practitioners tend to dismiss research findings as impractical and irrelevant in effectively addressing people issues in organisations (Augustyn & Cillié, 2008; Shreuder & Coetzee, 2010). The issue of practical relevance is hotly contested and it has been argued that it is not possible to give a categorical definition of practical relevance (Anderson et al., 2001; Symon, 2006). The question of practical relevance is fraught with difficulties such as relevance for whom, in what context and for what purposes? What constitutes practical relevance depends on the stakeholders involved in the research process. For the purposes of the present study, and based on literature reviewed thus far, the meaning of practical relevance is confined to and encapsulated as the usefulness of industrial psychology research knowledge in the management of people-related issues prevailing in South African organisations.

It is important to briefly discuss why the researcher-practitioner rift has occurred. Anderson et al. (2001) state that "there is an increasing divide between researchers/academics and practitioners within our discipline…" (p. 392) and "we believe that researchers and practitioners are currently moving further apart" (p. 392). Several reasons have been advanced and include the decline of practitioner involvement in the publication process (Anderson et al., 2001; Briner & Rousseau, 2011); the decrease in the number of published articles co-authored by practitioners (Anderson et al., 2001); the insistence by some researchers that it is acceptable and defensible to undertake industrial psychology research

that is not based on practical organisational problems (Hulin, 2001, cited in Rupp & Beal, 2007). Other researchers have extended this argument by stating that rigorous pure research must remain a part of management (in this case industrial psychology) research (Hodgkinson & Starkey, 2011). Such research may be conceived out of the simple desire to get a general understanding of, for example, the psychology of people at work (Hulin, 2001 cited in Rupp & Beal, 2007). The need by researchers based at academic institutions to publish as many articles as possible, or "the publication fever" (Guion, 1988, cited in Augustyn & Cillié, 2008, p. 70), may have contributed to the emergence of the research-practice gap because, as argued by Augustyn and Cillié (2008), researchers are pressurised to publish small and ill-conceived studies that do not constitute any increments to the science of industrial psychology. This pressure on researchers to "publish or perish" forced researchers to publish everything in the absence of anything important to say (Augustyn & Cillié, 2008, p. 70). Dunnette and Hough (1990, cited in Augustyn & Cillié, 2008), refer to a study done by John Campbell in 1982 in which he asked researchers to describe circumstances surrounding studies that they had conducted and that, retrospectively, they regarded as not making any significant contributions to the science and practice of industrial psychology. The results revealed that the studies were driven by:

> (a) the availability of a database, (b) the opportunity to make use of an established phenomenon, (c) the need for a quick publication, (d) the desire to address a topic that was "hot" at the time, (e) an attempt to get another article out of old data by simply using a different statistic, (f) the requirement to do a study on someone else's contract on an issue that was of no intrinsic interest and (g) an opportunity to perform an easy replication of another project (p. 71)

The heart of the argument is that literature consistently suggests that a gap exists between research and practice in industrial psychology and that this impacts on the relevance of industrial psychology research to industrial psychology practice in organisations.

Given that research in industrial psychology in South Africa has generally evolved and contributed significantly to the development and maturity of the discipline in the country (Van Vuuren, 2010), and that its practitioners have generally responded responsibly to workplace challenges (Van Vuuren, 2010), albeit with some difficulties, it is apt to examine the nature of the relations between research and practice in the discipline within the South African context. The present study explored peer-reviewed abstracts of research papers presented at SIOPSA conferences from 2000 to 2011. While previous studies have examined journal articles, masters and doctoral theses, the present study differs in that it specifically focused on SIOPSA abstracts and on the views of practitioners regarding current and future research in industrial psychology.

2.7. Society for Industrial and Organisational Psychology of South Africa (SIOPSA)

SIOPSA is an acronym for the "Society for Industrial and Organisational Psychology of South Africa" (SIOPSA Constitution, 2010, p. 1), which, in its current form, was established in 2005. Between 1994 and 2005, SIOPSA was a division of the Psychological Society of South Africa (PsySSA). SIOPSA is a non-profit professional association whose aims, among others, are to:

> Encourage the existence of a fair and humane work situation in South Africa, to which all have an equal opportunity of access and within which all can perform according to their abilities, can develop to their full potential and can experience a high quality of work life… and …to create conditions in which Industrial and Organisational Psychologists will be able to deliver efficient and effective services to the benefit of all in South Africa… (SIOPSA Constitution, 2010, p. 1).

SIOPSA represents a relatively large number of industrial psychologists in South Africa. For example, in 2005 SIOPSA had 245 registered industrial psychologists on its database (Benjamin & Louw-Potgieter, 2008). As of May 2006, SIOPSA had 402 members and as at June 2011, it had 625 members and 283 active guests (SIOPSA Annual Report, 2006;

SIOPSA Annual Report, 2011). This means by June 2011 the organisation had 908 individuals actively participating in its events and website (SIOPSA Annual Report, 2011). SIOPSA offers access to continuous professional development activities to industrial psychologists on a national and regional level (www.siopsa.org.za). In addition, SIOPSA comprises various special interest groups such as the Consulting Psychology Interest Group and the Interest Group in Coaching and Consulting Psychology (IGCCP) (SIOPSA Annual Report, 2009/2010).

SIOPSA hosts an annual conference where research is presented and the peer-reviewed abstracts are collated into a booklet. The current research analysed the themes covered in the abstracts in order to identify trends regarding the areas of research that have received attention in the last twelve years. The reason for focusing on SIOPSA abstracts is that the conferences represent an additional avenue for the dissemination of research. The conferences are attended by both researchers and practitioners and it is therefore a suitable forum for the presentation of research conducted by and of interest to both groups.

SIOPSA states that it sets out to understand the needs of industrial psychologists, enhance the credibility of the discipline and encourage research related to the science, practice and teaching of industrial psychology (SIOPSA Consitution, July 2010). More specifically, the aims of SIOPSA are achieved through:

> Maintaining close contact with the needs of Industrial and Organisational Psychologists in all spheres of Industrial and Organisational Psychological practice and addressing their need timeously" and "maintaining close contact with the consumers of Industrial and Organisational Psychological services…
> (SIOPSA Constitution, 2010, p. 2)

It can be inferred from the above that for SIOPSA to achieve its aims, the society recognises that it has to focus on the needs of industrial psychologists and that to be cognisant of their needs, SIOPSA must maintain close contact with them and others who require industrial psychological services. Therefore the SIOPSA conferences are considered to be a suitable forum for identifying and discussing research trends

As highlighted above, SIOPSA endeavours to maintain "close contact with the needs of industrial and organisational psychologists…" (SIOPSA Constitution, 2010, p. 2). For the purpose of the present study, the term "needs" is used to refer to all employee-related challenges that industrial psychologists are required to address in organisations. These employee-related challenges have been described as people-issues (Swanm Scarbrough & Preston, 1999); people management (Shreuder & Coetzee, 2010); "people-related business issues" (Shreuder & Coetzee, 2010, p. 2); "people-related business problems" (Shreuder & Coetzee, 2010, p. 2); "people management practices" (Cabrera & Cabrera, 2005; Wright et al., 2001); and human capital issues (Cascio & Aguinis, 2008). Additionally, "needs" also refers to the profession-specific skills, competencies and training that industrial psychologists themselves need as professionals. For the purposes of the current study, the employee-related issues and the professional needs of industrial psychologists are referred to as industrial psychology issues.

The year 2000 was arbitrarily selected as the starting point of the research. However, there were coincidental factors that made 2000 a vantage point. For example, it was closer to the first SIOPSA Annual Conference held in 1998 and whose abstracts, and those for 1999, were difficult to locate. Abstracts from 2000 were available and provided more comprehensive information than the previous years. The year 2000 marked the beginning of a six year period before SIOPSA split from the Psychological Society of South Africa (PsySSA) in 2005.

2.8. Aim and Research Questions

The purpose of the present study was to identify trends in the research presented at SIOPSA conferences and to examine the extent to which these themes are consistent with the needs of industrial psychologists in South African organisations. In addition, it attempts to identify industrial psychology practitioners' perceptions of research needs for the next five to ten years. This gives rise to the following research questions:

Primary questions

1. What are the trends regarding industrial psychology research themes in research presented at SIOPSA conferences from 2000 to 2011?

2. To what extent do these themes match research needs as perceived by industrial psychology practitioners in South Africa in the last twelve years?

Secondary question

3. What themes should be addressed by industrial psychology research over the next five to ten years based on the perceptions of industrial psychologists surveyed?

CHAPTER 3: METHODOLOGY

3.1. Research approach

The present study is, to a large extent, qualitative in orientation but also adopts specific aspects of quantitative research. Qualitative research is "the non-numerical examination and interpretation of data…" (Babbie, Mouton, Vorster & Prozesky, 2001, p. 646); or research that entails the collection and analysis of non-numerical information or data such as descriptions of behaviour, the content of people's responses to interview questions or the contents of documents (Whitley, 2002). Quantitative research involves the collection and analysis of numerical information such as scores on a test, means and frequencies (Whitley, 2002). It has been argued that the two approaches complement each other and can be used in complementary ways (King et al., 1994 cited in Neuman, 2000; Neuman, 2000; Ragin, 1994, cited in Neuman, 2000).

The qualitative dimension of the present study comprises descriptive, comparative and exploratory aspects. The study is descriptive in that it provides a relatively detailed description of what has been or is being researched in industrial psychology in South Africa based on existing literature and the views of respondents. The comparative aspect involved an examination of what has been or is being researched in industrial psychology, and comparing it to the current needs of industrial psychologists especially those working in organisations and thereby determining its perceived relevance to the needs of practitioners in organisations. A study is exploratory if its goals are to become familiar with basic facts, views and concerns; to create a general mental picture of conditions; or to formulate and focus questions for future research (Neuman, 2000). The current study explored the current status of relations between the research and practice dimensions of industrial psychology in South Africa with specific focus on SIOPSA conference presentations and the perceptions of industrial psychology practitioners. From the resultant knowledge the study proposes future areas of research in industrial psychology in South Africa. Furthermore, the study is exploratory in that it explores industrial psychologists' perceptions concerning two issues: firstly, what they perceive should be the current focus of research in industrial psychology in South Africa.

Secondly, what they anticipate to be areas of research focus in industrial psychology in South Africa in the next 5 to 10 years.

The quantitative dimension involved the use of simple descriptive statistics such as frequencies and percentages. For example, the total number of abstracts analysed; and of the total number of abstracts analysed, how many and what percentage were in organisational, personnel and career psychology. Based on the SIOPSA abstracts analysed, descriptive statistics were applied to determine the total number and percentage of specific topics under organisational and personnel psychology that were researched during the period 2000 to 2011. Although the study has a quantitative component, it is non-experimental in that there is no experimental or control group and neither is there random assignment of participants into such groups. There is no manipulation of an independent variable or measurement of a dependent variable.

Given the description above, it is proposed that the present study is not purely qualitative, but falls within the ambit of mixed methods research referred to as qualitative-dominant mixed methods research (Johnson, Onwuegbuize & Turner, 2007). Qualitative-dominant research is "the type of mixed research in which one relies on a qualitative, constructivist-poststructuralist-critical view of the research process, while concurrently recognizing that the addition of quantitative data and approaches are likely to benefit most research projects" (Johnson et al., 2007, p. 124). The model below depicts the position of the present study along the qualitative-quantitative continuum:

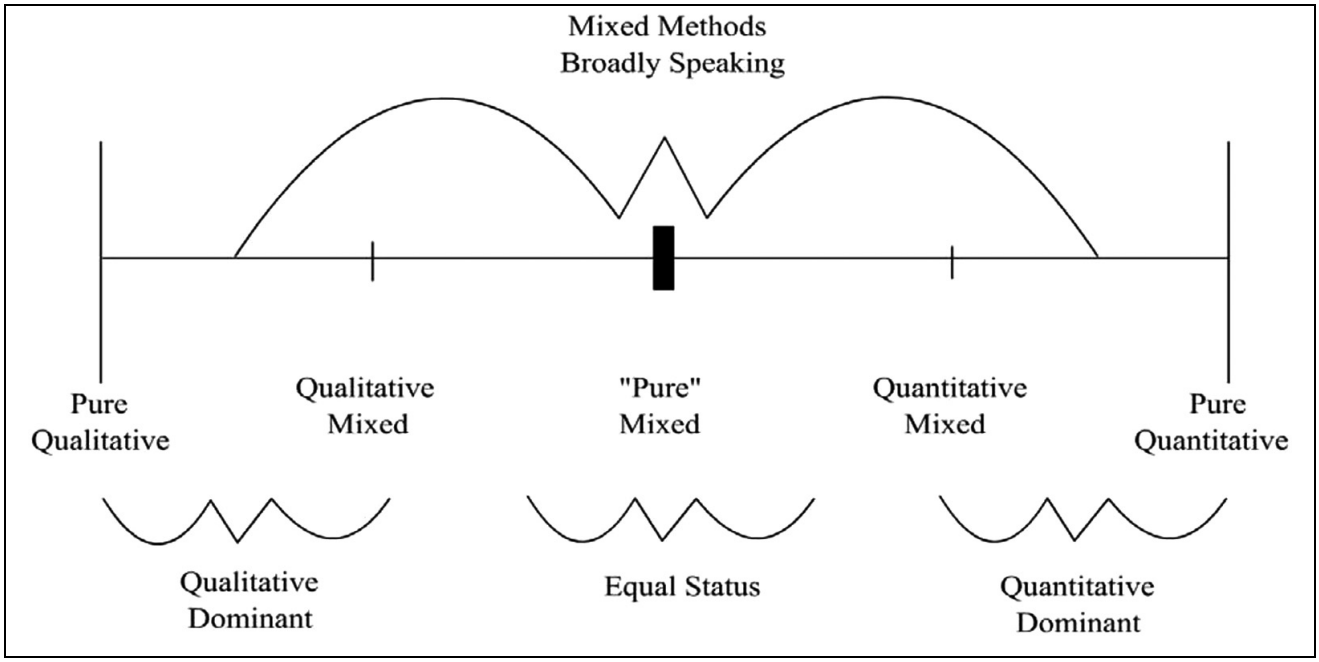

Figure 2. The qualitative-quantitative research continuum *(*Adapted from Johnson et al., 2007, p. 124)

3.2. Sample

The present study employed two samples or sources of data, namely, SIOPSA abstracts and registered South African industrial psychologists. The two samples are described in detail below. First, a description of SIOPSA abstracts and their characteristics is presented followed by a description of the sample of industrial psychologists.

3.2.1. First sample: SIOPSA abstracts.

SIOPSA abstracts constituted the sample used to identify the research themes covered in the last twelve years. SIOPSA conferences are held annually and this has been the trend for the past fourteen years. The 2011 SIOPSA Annual Conference was the fourteenth annual conference (SIOPSA Book of abstracts, 2011). For each annual conference, SIOPSA publishes a book containing abstracts of all peer-reviewed research papers (and other presentations) presented at the conference. The present study focused on the twelve SIOPSA books of abstracts from 2000 to 2011 and these formed the sources of data regarding the research that has been conducted in the area of industrial psychology over the last twelve years. The twelve books consisted of a total of 864 abstracts, which ranged from 46 to 96

abstracts per book. The total number of abstracts (864) includes abstracts that did not present strictly South African industrial psychology research, for example, international keynote speakers, workshops and presentations. All abstracts in each book, including those that were not strictly South African research, were analysed and categorised to determine the industrial psychology themes that were presented at the conferences. A random selection of the shortest and longest abstracts showed that they ranged from 31 words to 1 235 words in length.

3.2.2. Second sample: Industrial Psychologists

The second sample consisted of registered industrial psychologists and was used to identify perceptions of current and future research needs. For this sample, the focus was on qualified and registered industrial psychologists (researchers/academics and practitioners) with at least a Masters degree in industrial psychology and a minimum of 5 years' experience as industrial psychologists. The rationale for choosing "five years" was based on the assumption that at five years the industrial psychologist would have amassed the requisite experience to give them a firm grasp of current fundamental research and practice issues in industrial psychology in South Africa.

This sample consisted of two subsamples. The first subsample comprised industrial psychologists who responded to the electronic survey and the second subsample was composed of industrial psychologists who participated in telephonic interviews. Of the 216 industrial psychologists approached via the electronic survey, 14 responded yielding a 6 percent response rate. Thirty industrial psychologists were invited to participate in the telephonic interviews and 23 agreed to participate, yielding a response rate of 77 percent. The industrial psychologists who participated in the interviews worked for private organisations in different sectors of the economy (e.g., mining, manufacturing, banking, insurance and consulting) and academic institutions in South Africa's Gauteng province. Their job titles differed across organisations with examples including professor, consultant, director, managing director, consulting psychologist, coaching psychologists, head of talent management and head of competencies and psychometric assessment. Their individual years of experience ranged from 5 to 30 years.

For both subsamples, non-probability purposive sampling was used. Purposive sampling refers to a non-probability sampling procedure in which the researcher applies his/her insight in determining the study's participants depending on the objectives of the research (Neuman, 2000; Whitley, 2002). The researcher selects and approaches a particular group of participants because of specific characteristics they possess that make them suitable for inclusion in the research (Babbie et al., 2001). In the present study, the researcher specifically targeted registered industrial psychologists with a minimum of 5 years' experience. For the telephonic interviews, the type of purposive sampling used is called snowball sampling. In snowball sampling, participants initially recruited through convenience or purposive sampling recommend other participants whom they think are suitable and might be willing to participate in the research (Whitley, 2002). Snowball sampling is a process of accumulation as each located participant suggests other participants (Babbie et al., 2001). Those initially recruited were invited to suggest other industrial psychologists for the study.

3.3. Procedure

The procedure consisted of three main steps. First step involved sourcing SIOPSA abstracts and analysing them using content analysis. The second step entailed sending out the online electronic survey to industrial psychologists in practitioner and researcher roles. The third step was the telephonic interviewing of industrial psychologists in various organisations. The first two steps were implemented concurrently. The poor response rate to the electronic survey (second step) necessitated the adoption of telephonic interviews as an additional data collection method.

For the first sub-sample of industrial psychologists, two approaches were used. First, an online electronic survey was e-mailed to industrial psychologists based at South African corporate organisations, consulting firms and universities. Second, twenty industrial psychologists were contacted through the social networking site, LinkedIn and the I/O Careers Group on LinkedIn. A link to an online electronic survey was e-mailed to 216 industrial psychologists based at South African corporate organisations, consulting firms and

universities. The electronic survey was also sent to the 20 industrial psychologists who were contacted through the social network site, LinkedIn and the I/O Careers Group on LinkedIn. Reminders were sent out to prospective participants two weeks after the first e-mail but there was no improvement in the response.

The telephonic interviews, which were used for the second subsample, involved phoning various organisations in various sectors and requesting to speak to the Human Resources Manager, Talent Manager, Assessment Specialist, Organisational Development Consultant, Performance Management Specialist or Company Industrial/Consulting Psychologist. The use of these various job titles was necessitated by the fact that industrial psychologists assume different job titles in their specific employing organisations. Regardless of these various job titles, all participants in the telephonic interviews were registered industrial psychologists. The researcher explained the nature and purpose of the research and gave a brief overview of the five questions.

3.3.1. Data collection

Following Cascio & Aguinis (2008), who conducted a similar study and state that their data collection procedure consisted of manually coding every article published in all issues of two journals (Journal of Applied Psychology and Personnel Psychology) from 1963 to 2007, data collection for the present study involved manually analysing SIOPSA abstracts using eight specific criteria and recording relevant details from each abstract for all abstracts from 2000 to 2011.

Data were collected from one subsample of industrial psychologists using an online electronic survey. The electronic survey comprised twenty questions, of which ten were biographical questions (Appendix A). A participant information sheet and the link to the electronic survey were attached to the e-mail sent out to prospective participants. The participant information sheet provided succinct details of the nature and purpose of the research and included an invitation to the prospective participants to take part in the research.

Data collection from the second subsample of industrial psychologists was done using telephonic interviews.

Twenty-three industrial psychologists participated in the telephonic interviews which lasted for twenty minutes. Thirteen participants preferred to provide their responses over the telephone, and ten requested to respond via e-mail in order to have more time to consider their responses. The five questions were e-mailed to the ten industrial psychologists and they all responded within three days. Of necessity, fewer and more open-ended questions were asked in the telephonic interviews than in the electronic survey. The following questions were posed:

1. What is your job title?
2. For how long have you been practising as an industrial/organisational psychologist?
3. What industry/sector(s) do you operate in?
4. What issues/topics/areas do you think should be the focus of research for industrial/organisational psychology in South Africa currently?
5. What issues/topics/areas do you think should be the focus of research for industrial/organisational psychology in South Africa in the next 5 to 10years?

3.4. Analysis

Thematic content analysis was used to identify themes in the SIOPSA abstracts, the electronic survey and the telephonic interviews. Thematic analysis is a method for identifying, analysing and reporting patterns or themes within data and it organises and describes data in rich detail (Braun & Clarke, 2006). The present study involved identifying industrial psychology themes in the data. Further it also involved generating frequencies or frequency counts and rankings for industrial psychology global categories and themes (content areas). This form of content analysis that generates frequencies and ranking is called quantitative content analysis (Macnamara, 2005). Content analysis is defined as a technique

used to extract desired information from a body of material by systematically and objectively identifying specified characteristics of the material (Smith, 2000); or "a technique for making inferences by statistically and objectively identifying specific characteristics of messages" (Holsti, 1968, p. 601, cited in Whitley, 2002, p. 336), "such as those contained in speeches, letters, diaries, news reports, and entertainment media" (Whitley, 2002, p. 336). Neuman (2000) proposes a simpler definition of content analysis as "a technique for gathering and analysing the content of text" (p. 292). The content refers to words, meanings, pictures, symbols, ideas, themes and any messages that can be communicated. The text can be anything written, visual, or spoken that serves as a medium of communication and includes books, newspaper or magazine articles and official documents (Neuman, 2000). In the present study, the text referred to all abstracts contained in the twelve books from 2000 to 2011, the responses given by industrial psychologists to the electronic survey and to the telephonic interview questions. For SIOPSA abstracts, the content referred to global areas of industrial psychology identified in each abstract, the titles of abstracts; the specific issues and topics researched on and reported, the stated aims and objectives of the research; the sample demographics such as gender and organisational level of participants in the research and sample size; and the data analysis methods applied by the authors, namely, quantitative and qualitative. For the electronic survey and the telephonic interviews, the content referred to the industrial psychology global categories and specific themes (content areas) that were mentioned by the industrial psychologists.

The use of content analysis is consistent with the approach adopted in similar studies in industrial psychology (e.g., Cascio & Aguinis, 2008; Schreuder & Coetzee, 2010). Cascio and Aguinis (2008) state that content analysis converts qualitative material into quantitative data that can, afterwards, be analysed within the limitations of nominal or categorical measurement. The advantage of content analysis, specifically for the present study, was that it provided a replicable methodology for identifying patterns in previous SIOPSA research. It also provided a methodology for identifying and grouping research themes for current and future research as perceived by industrial psychologists. Content analysis is highly flexible and in the present study it allowed the researcher to categorise abstracts into various areas in the field of industrial psychology (Cascio & Aguinis, 2008; Duriau, Reger & Pfarrer, 2007; Elo & Kyngäs, 2007). Another advantage of content analysis is that it is a safe methodology

because the coding scheme can be corrected if flaws are detected as the study proceeds (Duriau et al., 2007). When done properly, content analysis entails the specification of category criteria or data for reliability and validity inspections that supports the generation of a replicable database (Duriau et al., 2007).

Content analysis can be done deductively or inductively. Deductive content analysis is used when the objective is theory testing and moves from the general to the specific (Elo & Kyngäs, 2007; Neuman, 2000). It begins with abstract, logical relationships among concepts and proceeds to solid, factual evidence (Elo & Kyngäs, 2007; Neuman, 2000). Summarised steps in deductive content analysis include theory, hypothesis, observation and confirmation. Inductive content analysis moves from observation, establishing or recognising patterns, tentative hypothesis and theory building or the construction of more abstract generalisations and ideas (Neuman, 2000). Inductive content analysis proceeds from the specific to the general (Elo & Kyngäs, 2007). The present study adopted inductive content analysis to establish general patterns and trends in order to construct comprehensive across-the-board generalisations and ideas on industrial psychology research and practice in South Africa in the past twelve years.

The process of content analysis follows three or four broad steps (Elo & Kyngäs, 2007; Whitley, 2002). According to Elo and Kyngäs (2007), the three main steps are preparation, organising and reporting. The preparation phase encompasses deciding on or identifying sources of data (Neuman, 2000; Whitley, 2002), selecting the unit of analysis (Elo & Kyngäs, 2007), and sampling considerations (Elo & Kyngäs, 2007). As mentioned previously, the sources of data for the present research were SIOPSA abstracts and industrial psychologists. For the abstracts, the unit of analysis was an entire abstract inclusive of the abstract title and as well as the conclusions and recommendations where they were provided. For data obtained through the electronic survey, the unit of analysis was the responses provided by respondents. Some of the responses were in one word form or sentences of not more than two hundred words. For the telephonic interview data, an entire interview with one industrial psychologist formed the unit of analysis. This was in keeping with the recommendation by Graneheim and Lundman (2004, cited in Elo & Kyngäs, 2007) who point out that the most appropriate unit of

analysis is whole interviews that are large enough to be considered as a whole and small enough to be kept in mind as a context for meaning during the process of content analysis. Some industrial psychologists gave responses ranging from two-word phrases to twenty-word sentences. Industrial psychologists who responded to interview questions via e-mail provided responses ranging from two-word phrases to paragraphs of 130 words.

The organising phase subsumes open coding, developing a structured analysis matrix or a coding scheme for data to be analysed, data grouping and categorisation, and abstraction (Elo & Kyngäs, 2007; Whitley, 2002). For the purposes of the present study, a structured analysis framework also called an analysis matrix, coding scheme, content analysis taxonomy or categorisation framework (Cascio & Aguinis, 2008; Elo & Kyngäs, 2007; Shreuder & Coetzee, 2010; Whitley, 2002), was developed and was composed of seven criteria described below. In essence, an analysis matrix is used as a system for recording specific aspects of the material analysed (Neuman, 2000). For example, in this study, the analysis matrix was used to record and arrange aspects such as the global industrial psychology areas within which a reported study was subsumed, the sample sizes used in the reported research, participants' gender and methods of data analysis (see figure 3). The SIOPSA abstracts were analysed in terms of global themes (global categories) and specific themes (content areas in industrial psychology) as explained below.

Global area: these are the global themes, domains or categories in industrial psychology as defined by Schreuder and Coetzee (2010) and Van Vuuren (2006). These areas are defined as "fields" (Schreuder & Coetzee, 2010), "sub-fields" (Van Vuuren, 2006) and "areas…or fields of study" (HPCSA, 2010) in industrial psychology. These consist of personnel psychology, organisational psychology, career psychology, ergonomics and consumer psychology (HPCSA, 2010; Benjamin & Potgieter, 2008; Shreuder & Coetzee, 2010; Van Vuuren, 2010). For the purposes of the present study, these pre-determined global categories of industrial psychology were used and three more were added, namely psychological assessment (HPCSA, 2010; Benjamin & Potgieter, 2008; Shreuder & Coetzee, 2010; Van Vuuren, 2010), wellbeing (Shreuder & Coetzee, 2010) and professional practice (Benjamin & Louw-Potgieter, 2008). Each one of these global areas will be briefly defined in Table 2. It is

important to highlight that literature on global categories of industrial psychology indicates that psychological assessment and wellbeing are subsumed under personnel psychology and organisational psychology respectively (e.g., Shreuder & Coetzee, 2010; Van Vuuren, 2010). However, in terms of the categorisations of the Health Professions Council of South Africa (HPCSA), psychometric assessment, referred to as psychological assessment in this study, is a global category of industrial psychology. This may have been done to demonstrate that in organisational settings psychological assessment is strictly the purview of industrial psychologists and not general human resources practitioners who focus on applied personnel psychology or human resources management and are excluded from conducting psychological assessment (Barnard & Fourie, 2007; Shreuder & Coetzee, 2010; Van Vuuren, 2010).

To categorise each abstract under the appropriate global domain (e.g., personnel, organisational or career psychology), a taxonomy was constructed a priori following previous local empirical studies and theoretical reviews (e.g., Shreuder & Coetzee, 2010; Van Vuuren, 2010), international empirical studies (e.g., Cascio & Aguinis, 2008) and the Society for Industrial and Organisational Psychology (SIOP, USA) 2011 conference programme. The study by Shreuder & Coetzee (2010) was used because it is the most current and comprehensive review of industrial psychology research trends in South Africa. In fact, the two authors state that there is a dearth of such reviews in South Africa (Shreuder & Coetzee, 2010). The article by Cascio & Aguinis (2008) was also used because it is "the most extensive content analysis of the industrial/organisational psychology literature conducted to date" (p. 1063) which content-analysed 5, 780 articles from 1963 to 2007. The taxonomy used in the current study is shown below in Table 1. The SIOP (2011) conference programme was useful for determining current content areas (specific themes) in industrial psychology (see Appendix B for 2011 SIOP conference programme).

Table 1

Taxonomy used in data classification

Global themes	Specific themes (Content areas)
Personnel psychology	Job analysis, competency modelling, compensation/remuneration management Talent management- recruitment and selection, succession planning, human resources development, performance management, training and development
Organisational psychology	Leadership/leadership development, organisational development/change/transformation Coaching/Executive coaching, Job attitudes- job satisfaction, organisational commitment, organisational justice, motivation, -organisational citizenship behaviour, workplace deviance, workplace bullying -counterproductive workplace behaviour Organisational climate, organisational culture, psychological climate
Psychological assessment	Personality assessment, cognitive assessment, learning potential assessment,crosscultural validation Fairness, bias, culture-fairness in psychometric assessment, test administration, Internet based testing
Wellbeing	General organisational and employee wellness, psychological wellbeing, emotional wellbeing Sense of coherence, locus of control, workplace management of HIV/AIDS

Table 1. (continued)

Taxonomy used in data classification

Global themes	Specific themes (Content areas)
Professional practice	Future fit, scope of practice- industrial psychology and human resources management
	Qualifications- test administrators
	Professional development- continuing professional development
	Ethics/professional ethics- ethics for industrial psychologists
Career psychology	Career anchors, career development, career advancement, career resources, career satisfaction
	Work/life balance,
Ergonomics	Performance shaping factors- human-computer/machine interface, prescription drugs,
	-technology adoption, attitudes towards technology, human reliability analysis/human error
	Work environment, work tools/equipment,
	Usability evaluation
Consumer psychology	Consumer preference, Consumer attitudes
	Consumer behaviour

Like any other taxonomy created for application in qualitative studies of this nature, it is not possible to declare unequivocally that the taxonomy used in the present study was the only possible taxonomy (Cascio & Aguinis, 2008; Shreuder & Coetzee, 2010). However, the taxonomy used in the current study was considered sufficiently comprehensive for classifying each of the 864 abstracts that were analysed. There were specific challenges with regard to specific themes (content areas) that were used differently in the various abstracts. For example, it was difficult to determine whether the psychological construct called "engagement" had the same meaning as "task engagement", "work engagement" and "employee engagement". It was problematic to determine whether job satisfaction referred to the same phenomenon as work satisfaction and employee satisfaction. In many cases different meanings were attached to the same construct, or different terminologies for the same construct. In some cases it was particularly challenging trying to map abstracts that appeared totally irrelevant to industrial psychology onto the categories in the taxonomy.

In cases where an abstract had a good fit with more than one global category, the researcher adopted Cascio and Aguinis's (2008) approach and chose the category with the perceived best fit. This may have led to some global areas being under-represented. To ensure that there was no systematic under-representation, an academic checked the categorisations. There were 497 abstracts that could have been placed in more than one category. In Table 2, the global themes are defined and examples of specific themes are given.

To improve the dependability, credibility and inter-rater consistency of the present study, especially with regards to the classification of abstracts into the appropriate global categories (personnel psychology, organisational psychology, psychometric assessment, wellbeing, professional practice, career psychology, ergonomics and consumer psychology), the researcher consulted available literature, both local and international to check, compare and verify definitions of various psychological constructs and themes under each global category. Definitions of constructs and themes were instrumental in determining the suitable global areas to which abstracts could be assigned. Literature consulted included mostly journal articles, handbooks of industrial psychology and published masters and doctoral theses. Since some of the papers presented at SIOPSA conferences are later published in the *South African*

Journal of Industrial Psychology and *South African Journal of Human Resources Management*, the author searched the journals' websites for the full articles with a view to determine the appropriate global domains for the abstracts. This process was necessitated by the existence of overlaps between the industrial psychology global categories and content areas. For example, based on available literature, work-life balance, life satisfaction, quality of work life and employee engagement are psychological constructs that can be subsumed under organisational psychology, wellbeing and career psychology (Coetzee & Viviers, 2007; Shreuder & Coetzee, 2010). While emotional intelligence can be classified under psychological assessment, it can also be classified under wellbeing (Coetzee & Viviers, 2007). Although psychological assessment is a global domain of industrial psychology it is also regarded as a content area under personnel psychology (Shreuder and Coetzee, 2010; Van Vuuren, 2010). In empirical research and theoretical articles, wellbeing is described as an acknowledged global area of industrial psychology (Shreuder & Coetzee, 2010; Van Vuuren, 2010). However, it is also described as a content area within organisational psychology (Shreuder & Coetzee, 2010; Van Vuuren, 2010). Themes such as hazardous work environments (e.g., loud noise, toxic substances, blinding light and noxious odours) are subsumed under ergonomics (Gould, Røed, Koefoed, Bridger, & Moen, 2006; Shreuder & Coetzee, 2010), occupational safety and health and organisational and employee wellness (Shreuder & Coetzee, 2010).

Table 2

Definitions of global areas (subfields, domains, or categories) in industrial psychology

Global area	Definition (s)	Specific themes (content areas) (examples)
Personnel psychology	Focuses on studying, measuring and predicting individual differences in behaviour and performance in work settings and improving person-work and person-organisation fit (Landy & Conte, 2007) (Shreuder & Coetzee, 2010; Van Vuuren, 2010)	Attraction, selection, placement, Retention, training, learning, development Rewards/remuneration,talent management, Performance management.
Psychological assessment	The development and utilisation of various of assessment instruments to to measure, predict, interpret and communicate distinguishing characteristics of individuals for a variety of work-related purposes such as selection (hiring, promotion, placement), successful work performance and development (career planning, skill and competency building, rehabilitation, employee counselling). The psychological assessment of individuals may help the organisation achieve person-environment fit and person-job/career fit within specific organisational context- department or work group (Shreuder & Coetzee, 2010)	Test development, test validation, Test administration Assessment of cognitive abilities, personality, interests, values, integrity and learning potential
Organisational psychology	Examines how organisations influence the attitudes and behaviours of their employees. It focuses on work at organisational level in order to understand how workers function in an organisation and how the organisation functions.	Work motivation, job statisfaction group dynamics, team work, power Organisational commitment Organisational change/development

Table 2 (continued)

Definitions of global areas (subfields, domains, or categories) in industrial psychology

Global area	Definition (s)	Specific themes (content areas) (examples)
Organisational psychology		Organisational design/structure Organisational culture/climate Quality of work life, leadership
Wellbeing	Encompasses employee and organisational wellness or health; also referred to as occupational mental health or wellness. Situated within the positive psychology perspective, to some extent overlaps with health and safety management and intervention training in the workplace (Shreuder & Coetzee 2010). A multi-dimensional state of being describing the existence of positive health in an individual as exemplified by quality of life and a sense of well-being (Corbin & Pangrazi, 2001, p. 3).	Stress, burnout and coping strategies Physical, social, emotional/mental & spiritual wellbeing Workplace management of HIV/AIDS Employee Wellness/Assistance Programmes
Career psychology	Focuses on providing models and explanations for organisational career-related activities. Is concerned with the psychological or psycho-social contract between the employee and the organisation; is about optimising the respective expectations of organisation and employee and what both are prepared to give to ensure the integrity of the psychological contract (Van Vuuren, 2010, p. 3).	Quality of work life Vocational/career counselling Work/family issues Work/life balance Interests and career orientations Career plateaus, employability

Table 2 (continued)

Definitions of global areas (subfields, domains, or categories) in industrial psychology

Global area	Definition (s)	Specific content areas/themes (examples
Professional practice	Adherence to scope of practice as stipulated by the Health Professions Council of South Africa (Professional Board of Psychology, 2010). Professional practice and/or scope of practice states that industrial and organisational psychologists plan, develop and apply paradigms, theories, models, constructs and principles of psychology to issues related to the world of work in order to understand, modify, enhance individual group and organisational behaviour effectiveness. Scope of practice refers to "applying the principles of psychology to issues related to the work situation of relatively well-adjusted adults in order to optimise individual, group and organisational well-being and effectiveness" (HPCSA, 2005, Form 244).	Ethics Scope of practice Professional Development Future fit
Ergonomics	Concerned with the human–machine interface or the interactions between humans and systems, such as production systems, communication networks and decision-making processes, IT systems, human–computer interaction, workplaces and the work itself, and specifically takes into account human factors such as physique, intelligence, emotion and patterns of social interaction. The underlying goal is to modify the work environment so that it is more compatible with the characteristics of human beings, thus obtaining a	Human-machine interface Human-computer interaction Equipment, work and workplace design

Table 2 (continued)

Definitions of global areas (subfields, domains, or categories) in industrial psychology

Global area	Definition (s)	Specific content areas (examples)
Ergonomics	better fit between humans and their work-related activities. Ergonomics also studies the interactions between human physical capabilities and problematic conditions related to the health and safety of employees in the workplace in an attempt to understand the limits of performance and the negative effects of certain factors on workers (Shreuder & Coetzee, 2010). Also called human factors, human factors engineering or engineering psychology (Landy & Conte, 2007; Litcht, Polzella & Boff, 1990) (Van Vuuren, 2010).	
Consumer psychology	Concerned with the psychological aspects of consumer behaviour; the systematic study of the relationship between the producers or distributors and consumers (actual or potential recipients) of goods and services (Shreuder & Coetzee, 2010)	Market research Consumer attitudes Buying habits and patterns Brand preferences Media research

As mentioned previously, the analysis matrix comprised seven criteria and the remainder of the criteria are described below.

Specific theme (content area): the relevant sub-area or activity within a global area. This is in keeping with the definition used by the HPCSA which refers to these sub-areas as "…activities within each field" (HPCSA, 2010, p. 38). The Society for Industrial and Organisational Psychology (SIOP, 2011) refers to these activities as content areas. For example, an activity or content area under organisational psychology would be change management or leadership development (Schreuder & Coetzee, 2010; SIOP, 2011). A content area can also be referred to as a theme or psychological construct (Cascio & Aguinis, 2008; Coetzee & Viviers, 2007). Examples of these themes or content areas are presented in Tables 1 and 2.

Focal area: the exact or precise focus of the research reported in the abstract.

Purpose/aim of the abstract: the stated specific objective, aim or reason for which the study was conducted.

Sample demographics: participants' organisational level, that is, managerial or non-managerial; sample size and participants' gender.

Organisational context: the industry or sector in which the reported study in the abstract was conducted.

Methods: the data analysis methods applied, that is, quantitative and/or qualitative.

Table 3 below shows the structure of the above analysis matrix as it appeared in an excel worksheet. Data collected from randomly selected abstracts from 2000 to 2011 are included as examples. The global areas are presented in the following order: personnel psychology, psychological assessment, organisational psychology, wellbeing, career psychology, professional practice, ergonomics and consumer psychology.

Table 3
The analysis matrix used in analysing SIOPSA abstracts

Global area	Specific content area	Focal area	Purpose/ Aim of abstract	Sample demographics	Organisational context	Methods
Personnel psychology (2000)	Competency modelling	Evaluation of a 360 degree competency assessment instrument.	To evaluate a 360 degree project management competency questionnaire relevant to a chemical engineering environment	Employee level: Not specified Sample size: 80 Gender: Not specified	Chemical engineering environment Technology development fnvironment	Not specified
Personnel psychology (2001)	Competency modelling	Designing company-wide competency models	To explore the use of a multi-method approach to job analysis and competency design in the modelling and mapping of a competency framework that will allow an organisation to integrate Human Resources processes and practices effectively.	Employee Level: Not applicable Sample size: Not applicable Gender: Not applicable	Not applicable	Not applicable
Psychological assessment (2002)	Internet or Computer-based assessment	Use of technology in recruitment and selection	To maximise and cost-effectively manage the efficiency and speed of recruitment and selection process.	Employee level: Job applicants or visitors to organisation's website Sample size: Not specified Gender: Not specified	Financial services/ Banking	Not specified
Psychological assessment (2003)	Multi-cultural assessment	Role of culture in assessment Cultural factors in assessment	To encourage sensitivity to cultural factors in assessment Present an argument on the best way of addressing cultural issues.	Employee Level: Not specified Sample size: Not specified Gender: Not specified	South African Police Service	Not specified
Psychological assessment (2006)	Test classification	Re-classification and re-evaluation of psychological tests	To discuss and solicit input from practitioners with regards to the classification and re-classification of psychological tests	Employee level: Not applicable Sample size: Not applicable Gender: Not applicable	Not applicable	Not applicable

Table 3 (continued)

The analysis matrix used in analysing SIOPSA abstracts

Global area	Specific Content area	Focal area	Purpose/ Aim of abstract	Sample demographics	Organisational context	Methods
Organisational psychology (2006)	Leadership development Coaching	Coaching role and leadership development in low-structured, fast changing environments.	To define criteria for coaching programmes for role and leadership development in low-structured, fast changing environments.	Employee level: Not applicable Sample size: Not specified Gender: Not specified	Not applicable	Not applicable
Organisational psychology (2008)	Organisational change/ Change Management	Concept, process and phenomenon of synergy in organisational change and/or change management	To discuss/explain synergy as a concept that describes the systemic processes whereby business units of diversified organisations will generate greater value through working as one system than working as separate entities	Employee level: Not specified Sample size: Not specified Gender: Not specified	Not specified -large global organisation.	Qualitative -grounded theory
Wellbeing (2000)	Psychological wellbeing	Psychological wellbeing of unemployed tertiary graduates	To explore the psychological wellbeing of unemployed tertiary graduates	Employee level: Non-managerial (tertiary level graduates) Sample size: 105 Gender: Not specified	Not applicable	Quantitative
Wellbeing (2007)	Employee wellness/ wellbeing Work/ Employee engagement Workaholism	Burnout, Work engagement and workaholism among employees in the insurance industry.	To determine relationship between Burnout, Work Engagement, and Workaholism among employees in the insurance industry	Employee level: Not specified Sample size: 153 Gender: Not specified	Insurance	Quantitative

Global area	Specific content area	Focal area	Purpose/ Aim of abstract	Sample demographics	Organisational context	Methods
Career psychology (2011)	Career expectations	Career expectations and retention factors for Generation Y Engineers	To establish the career expectations and retention factors of Generation Y engineers at entry level or in early phases of their careers.	Employee Level: non-managerial Sample size: 22 Gender: Not specified	Engineering research and consulting firms	Qualitative
Career psychology (2011)	Career management/ socialisatio Career development	Women's career aspirations from a career development perspective.	To explore alternative explanations for the "opt-out revolution" of women from managerial career paths using career development and managerial decision-making perspectives.	Employee level: managerial and non-managerial Sample size: 200 Gender: Not specified	Transport sector/ Transportation organisation	Quantitative
Professional practice (2005)	Scope of practice- -Industrial/Organisational Psychology -Human Resources Management	Roles and contributions of Industrial/Organisational Psychologists in relation to Human Resources Management Practitioners	To facilitate greater clarity on the roles and contributions of Industrial/ Organisational Psychologists, especially in relation to that of Human Resources Practitioners, based on a 16 Dimension Utility Framework.	Employee level: Not specified (Industrial/organisational Psychologists) Sample size: 25 Gender: Not specified	Not specified	Qualitative -content analysis
Professional practice (2010)	Professional ethics	Multi-national comparison o Codes of ethics for Industrial Organisational Psychologists	To conduct benchmarking exercise on psychology codes of ethics to identify similarities, differences and innovations	Employee Level: Not applicable Sample size: Not applicable (15 documents-codes of ethics) Gender: Not specified	Not applicable	Qualitative -thematic content analysis
Ergonomics (2004)	Technology adoption stages	Managing the stages of users concern in the adoption of new technology	To determine whether users move through stages of concern when adopting technology and whether certain biographical characteristics (age, department, length of using innovative technology) affects the stage of technology adoption	Employee level: Not specified Sample size: 92 Gender: Not specified	Large oil companies	Quantitative

Table 3 (continued).

The analysis matrix used in analysing SIOPSA abstracts

Global area	Specific Content area	Focal area	Purpose/ Aim of abstract	Sample demographics	Organisational context	Methods
Ergonomics (2009)	Automation Automation attitudes	Pilots' attitudes towards automation/perceptions of advanced	To determine relationship between airline pilots' biographic characteristics and their perceptions of advanced flight deck automation; and to identify areas in which Boeing pilots and airbus pilots agree or disagree regarding their perceptions about automation systems	Employee level: non-managerial Sample size: 262 Gender: male and female	Aviation	Quantitative
Consumer psychology (2007)	Consumer preferences and attitudes	Consumer psychological perspective on religion	To examine the extent to which religion may be viewed as a form of consumption	Employee Level: Not applicable Sample size: Not applicable Gender: Not applicable	Not applicable	Not applicable
Consumer psychology (2007)	Consumer preference Consumer decision-making	Hierarchical Value Mapping and consumer decision-making	To present a method for empirically establishing what drives the decision to visit a major wilderness area in South Africa	Employee Level: Not specified Sample size: Not specified Gender: Not Specified	Tourism	Not specified

SIOPSA provides information on the type of presentation for each abstract (e.g., panel discussion, workshop, research paper, keynote address, debate, and poster). The organising phase of content analysis as applied in the present study involved selecting the specific presentation types to use and developing new ones if necessary. One new presentation type was created and named theoretical reviews. Theoretical reviews were papers that included purely literature reviews distinct from empirical research papers. The analysis framework shown above was applied in the analysis of all abstracts including those that were not empirical papers. For all abstracts that were not empirical it was clearly shown by inserting the phrase "not applicable" under the relevant criteria (e.g., sample size) to indicate that the specific criterion was not relevant for that type of abstract. All types of presentations used at SIOPSA conferences from 2000 to 2011 are shown in Table 4 below. Some presentation types were used in specific years and not in others. New presentation types were introduced over the years from 2000 to 2011.

Table 4

SIOPSA presentation types

SIOPSA presentation type	Year(s)	SIOPSA presentation type	Year (s)
Keynote address/Keynote	2000- 2011	Symposium	2010- 2011
Panel discussion	2002, 2004, 2010- 2011	Practitioner track	2007
Workshops	2002	Professional track	2007
Practitioners' forum	2003- 2004	Journal	2007
Posters/Poster session/Interactive poster session	2002- 2003 / 2005- 2011	How to session	2009
Pre-conference workshops	2003- 2011	Master tutorial	2010- 2011
Stakeholders' forum	2004	Debate	2010- 2011
Work and interest groups	2005	Case study/How to session	2010- 2011
Papers	2005- 2011	Colloquium	2010- 2011
Research papers	2010-2011	Roundtable/conversation time -discussion/round table	2010- 2011

Further, the organising phase in content analysis includes deciding how to measure the content of the analysed text or how to assign numerical values. Researchers have engaged dichotomous measures and continuous measures such as frequency counts and percentages to systematically organise content-analysed data (e.g., Cascio & Aguinis, 2007; Elo & Kyngäs, 2007; Shreuder & Coetzee, 2010; Whitley, 2002). The present study used frequencies and percentages to organise the content-analysed data.

The seven criteria in the analysis matrix (Table 3) were not used for analysing data from the online electronic survey and telephonic interviews. This is because the electronic survey and the telephonic interviews were not structured in the same way as the SIOPSA abstracts: since SIOPSA abstracts are mostly summaries or reports "after" the research, best practice requires that to provide systematic details of the research (e.g., sample size, research context, data collection and data analysis methods). Conversely, participants in the electronic survey and the telephonic interviews were not required to provide systematic details of previous research; and the questions asked in the electronic survey and the telephonic interviews were not designed to yield the same data as that from the SIOPSA abstracts. While SIOPSA abstracts were analysed to determine dominant research themes in the past 12 years and how the research was conducted, the electronic survey and telephonic interviews were mainly designed to determine future research themes as perceived by the participating industrial psychologists. In this regard, data from the electronic survey and telephonic interviews did not contain the same information as SIOPSA abstracts. Therefore, data from the online electronic survey and telephonic interviews were analysed using only the taxonomy in Table 1 to identify specific themes (content areas) and assigning the specific themes to global categories.

3.5. Consistency of analysis

Given the qualitative nature of the present study, it was imperative to consider issues of inter-rater consistency in the categorisation of the data. The nature of the qualitative research paradigm implies a reasonable degree of flexibility in data interpretation and personal construction of inferred meaning (Shreuder & Coetzee, 2010). In qualitative research, perfect

degrees of reliability and validity can never be achieved and, therefore, researchers working in the paradigm zero in on the following aspects: considerations of trustworthiness or credibility, true value, creativity in the research approach, triangulation and reflection on the research exercise in its totality, as well as best practice in overcoming the potential problems (Barnard & Fourie, 2007; Cascio & Aguinis, 2008; Shreuder & Coetzee, 2010).

As this was a qualitative study the term "dependability" was better suited instead of reliability (Paterson & Uys, 2005). The objective was not to ensure replicability of the study, but to ensure that the findings were a reasonable reflection of the original data (Paterson & Uys, 2005). The term "credibility" or "adequacy" replaced validity, and for the purposes of this study, results of the analysis were considered credible or adequate if they accurately reflected the industrial psychology constructs that the researcher was examining (Long & Johnson, 2000; Paterson & Uys, 2005).

During the initial stages of the process of abstract analysis, data were checked by an experienced academic in the field of industrial psychology and in the application of content analysis in studies of this nature. This initial checking by the academic was designed to facilitate a common understanding of the systematic and consistent categorisation of abstracts. There was an in-depth discussion between researcher and the first academic on the application of content analysis to this study, the overall analysis framework and specific criteria to apply in the categorisation of abstracts. A second academic with vast experience in industrial psychology research and practice in South Africa checked the data at three different intervals. The second academic checked the author's categorisation of abstracts for agreement and consistency and provided in-depth comments especially regarding the classification of abstracts into global categories and definitions of global categories (e.g., ergonomics, human factors, engineering psychology). The in-depth comments were discussed between the researcher and the academic and led to appropriate changes in the categorisations of the data in order to improve its dependability and credibility. This is consistent with Long and Johnson (2000) and Shreuder & Coetzee (2010). The in-depth discussions with both academics were a form of peer debriefing in which the researcher discussed and clarified meanings of psychological constructs and emerging findings with the academics. The peer

debriefing was designed to identify any coding bias and to establish rigour within the study. This is consistent with the recommendations by Long and Johnson (2000). As a form of researcher triangulation, observations by researchers on the evolution of and challenges in industrial psychology were repeatedly consulted in the interpretation of the findings of the present study (Augustyn & Cillié, 2008; Bergh, 2009; Rothmann & Cilliers, 2007; Schreuder, 2001; Shreuder & Coetzee, 2010; Van Vuuren, 2010).

3.6. Self-reflexivity

As highlighted in the previous section, the present study is largely qualitative in nature and this warrants a brief discussion of self-reflexivity as a methodological technique for legitimising, validating, representing and questioning the research process, its representations and the data produced. Reflexivity refers to "a turning back on oneself, a process of self-reference. In the context of social research, reflexivity at its most immediately obvious level refers to the way in which the products of research are affected by the personnel and process of doing research" (Davies, 1999, p. 4 as cited in Pillow, 2003, p. 178). As Pillow (2003) argues, self-reflexivity recognises the researcher's role(s) and involvement in formulating the research questions, the research setting and research findings. It underscores the importance of the researcher being aware of these factors and their implications for his/her research. Anderson (1989, cited in Pillow, 2003) states that reflexivity involves a logical process that comprises the following: the researcher's constructs, the informants' commonsense constructs, the research data, the researcher's ideological biases and the structural and historical forces that shaped the social construction under study.

Pillow (2003) identifies four reflexive strategies: reflexivity as recognition of self (or "researcher know thyself"), as recognition of other, as truth, and as transcendence. Reflexivity as recognition of self refers to the researcher being aware of and/or seeking out his/her subjectivity during the research process; observing and monitoring him/herself during the process; and "disclosing" his/her subjectivity in the research the process. Reflexivity as recognition of the other connotes the ability to know and understand the other, the participant or human subject in the research; "to capture the essence" of the other (s), or "let them speak

for themselves" (Trinh, 1991, p. 57 as cited in Pillow, 2003, p. 184). Reflexivity as truth refers to the idea that the researcher "can get it right" (Pillow, 2003, p. 185), that is, researchers know what they mean, mean what they say, say what they mean and know what they have said. Reflexivity is used as an instrument for gathering the truth and for validating and legitimating research or making it more truthful (Pillow, 2003). Reflexivity as transcendence focuses on the researcher being able to surpass his/her subjectivity (e.g., national, cultural, ethnic) and (mis) representations (Pillow, 2003).

In the context of the present study, self-reflexivity relates to several issues such as the manner in which the researcher approached and recruited the research participants, the self-awareness of the researcher during the entire research process, the subjectivity of the researcher, data collection and data analysis. Self-reflexivity is therefore relevant to every aspect and step of the entire research process.

3.7. Ethical considerations

The Internal Ethics Committee for the School of Human and Community Development (SHCD) was approached for ethics clearance (see ethics form in Appendix C). The first ethical consideration was getting approval and consent from individual industrial psychologists in researcher or practitioner roles to participate in the study. An invitation letter or participant information sheet (Appendix D) was e-mailed to prospective participants inviting them to participate in the study. The participant information sheet explained the purpose, nature, scope and specific focus of the study. It explained that participation in the study was entirely voluntary and anonymous as no identifying details were required or to be made available when participants submitted their responses and that participation involved completing an on-line questionnaire for 15 minutes. Prospective participants were informed that all their responses would be treated in strict confidence; that responses would be analysed collectively, not individually, to determine trends; and that only group, not individual, responses would be reported in the final thesis. Prospective participants were informed that only the researcher and his supervisor would have access to both raw and

analysed data and that raw data would be kept in a secure place by the supervisor after completion of the study until such time as potential publications are printed.

CHAPTER 4: RESULTS

The results of the systematic analysis of SIOPSA abstracts and of data collected through the electronic survey and telephonic interviews are presented in terms of the taxonomy shown in Table 1. The first section of this chapter focuses on the number of SIOPSA research studies conducted in different sectors of the economy or organisational contexts. Results of the analysis of SIOPSA abstracts are presented first, followed by results from the electronic survey showing proposed current and future industrial psychology research areas. Results of the analysis of telephonic interviews with 23 industrial psychologists are then presented in terms of current and future research areas in industrial psychology as perceived by the interviewed industrial psychologists.

4.1. Trends regarding research themes in SIOPSA abstracts

The research presented at SIOPSA conferences in the last twelve years was conducted in private and public organisations from various sectors of the economy. The figures presented in this section apply to all types of SIOPSA presentations (see Table 4) considered together. Sixty-seven abstracts (8%) reported studies that were conducted in the financial services (banking and insurance) sector, followed by 62 abstracts (7%) in higher education or university settings mostly using student samples. Results show that 28 abstracts (3%) reported research studies conducted in the South African Police Service and the same number of abstracts (28) reported research done in the Health Services sector. The manufacturing sector had 25 abstracts (2.8%), while the mining sector had 24 abstracts (2.7%), followed by consulting firms with 21 abstracts (2%). Fourteen abstracts (1.6%) reported research conducted in the telecommunications industry, while 12 abstracts (1.3%) reported on research in the information technology sector. The tourism and hospitality, retail, and energy sectors and small-to-medium enterprises had 7 abstracts (0.8%) each. Two hundred and twenty-two abstracts (25.6%) did not specify the sectors or organisational contexts in which the studies were conducted.

The sample sizes reported in the abstracts ranged from as small as 1 participant to as large as 1.3 million participants. The sample sizes are presented in figure 3. Eighty-seven abstracts reported using samples comprising 50 participants or less; 50 abstracts reported on studies that used samples of between 51 to 100 participants; and 167 abstracts reported sample sizes of 101 to 500 participants. Forty abstracts reported sample sizes ranging from 501 to 1000 participants, while 53 abstracts used sample sizes of more than 1000 participants. One hundred and thirty-seven abstracts did not report sample sizes.

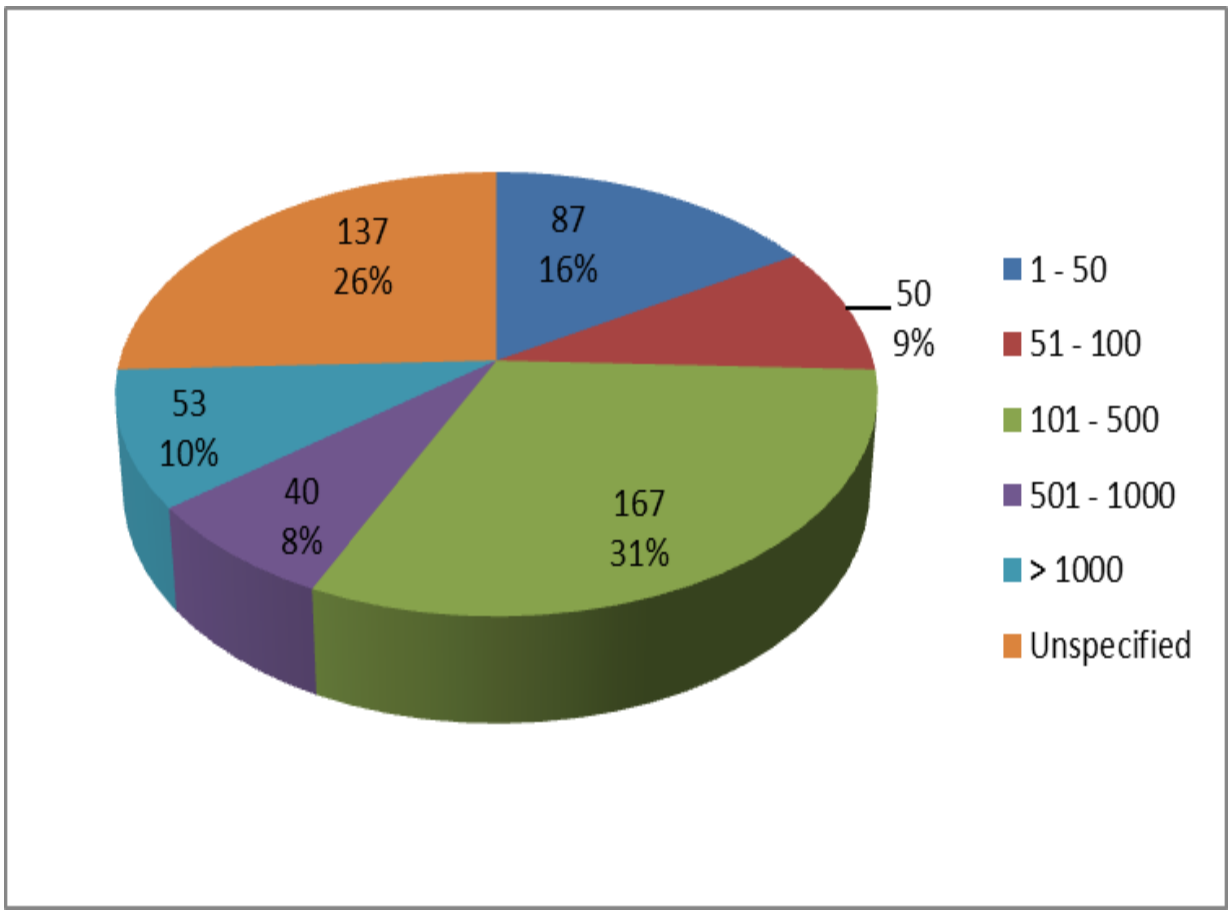

Figure 3. Sample sizes reported in SIOPSA abstracts
Note: the total numbers do not add up to 864 because not all SIOPSA presentations involved use of samples (e.g., master tutorials and panel discussions/debates).

Four hundred and forty-three abstracts did not indicate the gender composition of samples in the reported studies, while 64 abstracts specified that the reported samples comprised both

male and female participants. Ten abstracts reported using samples comprising only female participants, while 6 abstracts reported using samples consisting of male participants only.

The organisational levels (managerial or non-managerial employees) of participants in the reported studies are shown in figure 4 below. For the purposes of the present study, managerial level refers to first line or junior managers (supervisors), middle managers, senior and top managers (executives and board-level directors). Eighty-nine abstracts described samples comprising managerial employees only, while 50 abstracts reported samples of non-managerial employees only, and 41 abstracts described samples consisting of both managerial and non-managerial employees. Forty abstracts reported using samples of university students and high school learners. Three hundred and thirty-two abstracts did not specify the levels of employees who participated in the studies.

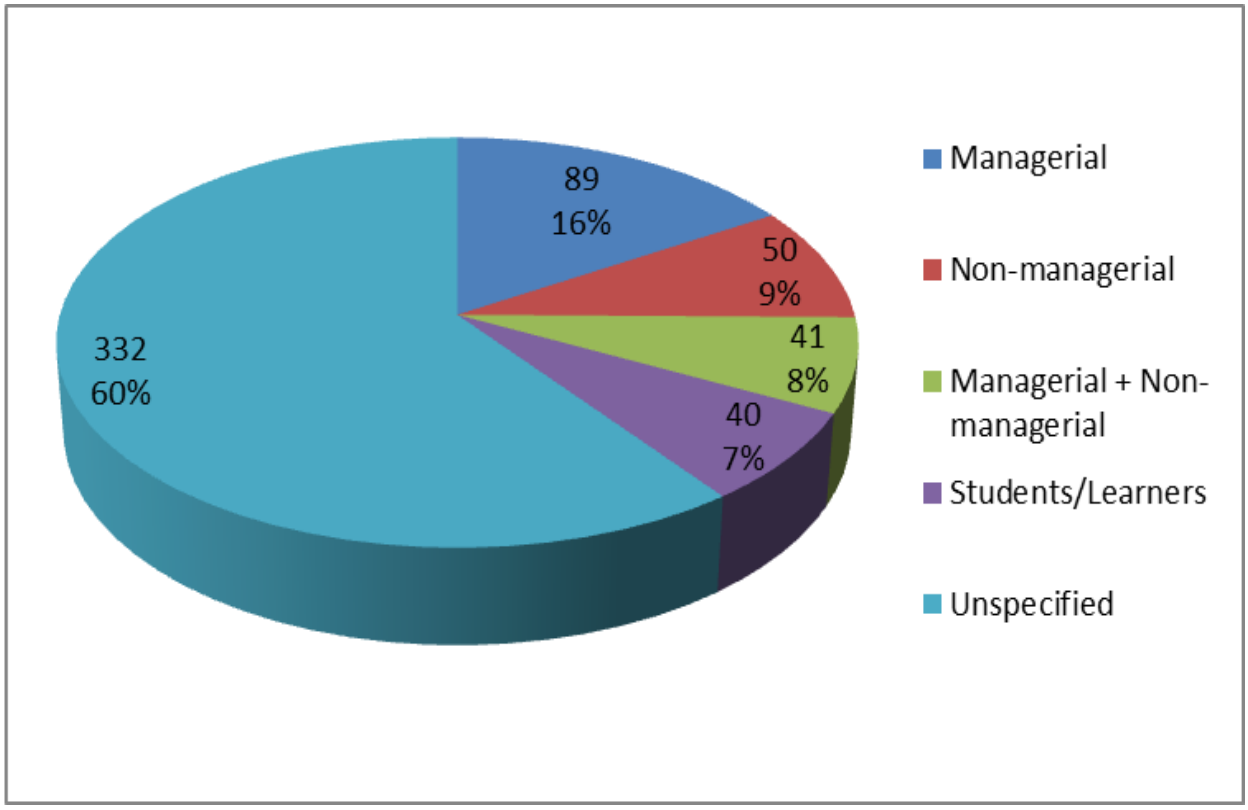

Figure 4. Organisational levels of employees who participated in the reported studies

Note: the total numbers do not add up to 864 because not all SIOPSA presentations involved use of samples (e.g., Master tutorials and panel discussions/debates).

Two hundred and fifty-two abstracts (29%) represented research conducted by practitioners, while 476 abstracts (55%) reported research conducted by researchers or academics. One hundred and twenty-nine abstracts (15%) represented research conducted by researchers and practitioners in collaboration. Seven abstracts (1%) did not specify the affiliation or role of the individuals who conducted the research. From 2000 to 2011, research done by practitioners steadily increased from 11 papers in 2000 to more than 30 over the years. In 2009, practitioners from various organisations presented 41 research papers. Research papers by researchers remained consistently high across the twelve year period. The lowest number was 28 in 2009 and the highest was 62 in 2003. Papers by researchers and practitioners increased steadily over the years from a minimum of 3 in 2000 to 26 in 2010.

Two hundred and ninety- seven abstracts (34.4%) reported using quantitative data analysis methods, while ninety-nine abstracts (11.5%) reported using qualitative data analysis methods. Eighty abstracts (9.3%) did not specify the data analysis methods used. Three hundred and eighty-eight abstracts (44.9%) did not involve the use of any data analysis methods (e.g., master tutorials, debates, roundtables and pre-conference workshops).

An overview of frequency trends in the various global areas of industrial psychology at SIOPSA conferences from 2000 to 2011 is presented in Table 5. There was a general upward trend in the total number of abstracts across the twelve year period. Consistent with this, the number of presentations for each global area increased for this period, with the exception of ergonomics and consumer psychology. During this period the most frequently presented content areas were in personnel psychology, organisational psychology and psychological assessment sequentially. The results suggest that both ergonomics and consumer psychology were consistently under-represented during this 12-year time span. Percentages refer to the percentage of abstracts for each global category within the relevant year. Personnel and organisational psychology consistently had the largest proportion of abstracts over the years. Together they accounted for about half to two-thirds of the total number of abstracts. Psychological assessment also had a substantial proportion of abstracts, ranging from seven to sixteen percent over the twelve year period.

Table 5

SIOPSA abstracts analysis- frequency counts and percentages of global areas in Industrial Psychology: 2000-2011 (N=864)

Global area	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Row total
Total *N*(sources of data)	(51)	(56)	(46)	(81)	(58)	(77)	(71)	(93)	(73)	(76)	(95)	(87)	(864)
Personnel psychology	20 (39%)	18 (33%)	16 (35%)	27 (33%)	19 (33%)	20 (26%)	25 (35%)	28 (30%)	22 (30%)	25 (33%)	23 (24%)	24 (28%)	267
Organisational psychology	11 (22%)	17 (30%)	14 (30%)	25 (31%)	18 (32%)	25 (33%)	20 (28%)	24 (26%)	23 (32%)	21 (27%)	30 (32%)	26 (30%)	254
Psychological assessment	13 (25%)	13 (23%)	7 (16%)	11 (14%)	12 (20%)	14 (18%)	16 (23%)	16 (17%)	11 (15%)	13 (17%)	14 (15%)	15 (17%)	155
Wellbeing	2 (4%)	2 (4%)	4 (8%)	9 (10%)	3 (5%)	8 (10%)	3 (4%)	8 (9%)	8 (11%)	4 (5%)	13 (14%)	4 (5%)	68
Professional practice	2 (4%)	1 (2%)	3 (7%)	2 (3%)	3 (5%)	8 (10%)	4 (6%)	7 (7%)	4 (5%)	8 (11%)	13 (13%)	11 (12%)	66
Career psychology	2 (4%)	3 (5%)	1 (2%)	5 (6%)	2 (3%)	2 (3%)	2 (3%)	8 (9%)	5 (7%)	3 (4%)	1 (1%)	6 (7%)	40
Ergonomics	- -	2 (3%)	1 (2%)	2 (3%)	1 (2%)	- -	- -	- -	- -	2 (3%)	1 (1%)	1 (1%)	10
Consumer psychology	1 (2%)	- -	- -	- -	- -	- -	1 (1%)	2 (2%)	- -	- -	- -	- -	4

Note: numbers and percentages are rounded off to the nearest whole number.

The remaining global areas (wellbeing, professional practice, career psychology, ergonomics and consumer psychology) were represented less frequently, with percentages of fourteen and below.

Examination of trends over too long a period may not capture underlying or subtle shifts in trends and may be cumbersome in terms of data interpretation; while examination of trends over too short a period such as one or two years may create illusory trends (Cascio & Aguinis, 2008). To overcome this, the twelve year time period in the present study, which was felt to be too long to bring out underlying trends, was divided into two equal time periods of six years (2000 to 2005 and 2006 to 2011). The trends emerging from this time periods are presented in Table 6. Save for ergonomics, all global categories showed an increase in the percentage of abstracts between the two time periods (Table 6). The greatest increases were for consumer psychology (50%), professional practice (42%) and career psychology (25%). Despite the enormous increase for consumer psychology, the actual number of abstracts in that area remained very small (2) and the percentage is inflated because it comes off such a small base. Ergonomics was the only global area with a decrease in the actual number and percentage of abstracts (-20%) between the two time periods (Table 6).

A further breakdown of the twelve year period into three time periods (2000-2003; 2004- 2007 and 2008-2011) revealed that the percentage increases for personnel psychology tended to become smaller in recent years, that is, from the 2000-2003 time period across to the 2008-2011 time period. The percentage increase for personnel psychology dropped from 6% to 1% and this is ifor organisational psychology the percentage increase dropped from 13% to 10%; for professional practice the percentage increase went down from 47% to 24%, while the percentage increase for career psychology reduced from 12% to 3%.

Table 6

SIOPSA abstracts analysis- frequency counts of global areas in Industrial/Organisational Psychology for two time clusters: 2000-2005 and 2006- 2011 (N=864)

Global area Total *N*(sources of data) 864	2000 – 2005	2006- 2011	Row total	Percentage increase (+)/decrease (-)[a]
Personnel psychology	120	147	267	10
Organisational psychology	110	144	254	13
Psychological assessment	70	85	155	10
Wellbeing	28	40	68	18
Professional practice	19	47	66	42
Career psychology	15	25	40	25
Ergonomics	6	4	10	-20
Consumer psychology	1	3	4	50
Total	369	495	864	

Note: a= percentage increase or decrease from one time period to another.

The following section presents an overview of specific themes within each global category of industrial psychology as covered in SIOPSA abstracts from 2000 to 2011. The results reveal that there were specific themes within each global category that were frequently covered at SIOPSA conferences during the twelve years under review. The most frequently covered themes in personnel psychology across the twelve year stretch focused on talent management practices and models, and related activities namely competency modelling, recruitment and selection in general and for succession planning, performance management and human resources development. There was a significant increase in talent management abstracts during the 2008-2011 time span compared to the previous years. Attendant to this was a substantial increase in the number of abstracts on staff retention. Industrial relations (the psychology of employment relations) emerged as a common theme during the 2000-2003 time span.

Abstracts on organisational psychology consistently revolved around organisational development, organisational culture, leadership, leadership development and teams. Teams and diversity management were frequently covered throughout the twelve year period. Abstracts on job attitudes namely job satisfaction and organisational commitment were common across the entire twelve year period. However, there was a marked increase in abstracts discussing job attitudes within the 2008-2011 time period owing to the emergence of research on other job attitudes namely employee engagement, employee withdrawal and workplace deviance.

Over the years, the most frequently appearing themes in psychological assessment were personality assessment; test/construct development, measurement and validation; fairness, bias and best practices in psychological assessment; emotional intelligence and cognitive ability testing; cross-cultural validation of tests and constructs; assessment centres; and statistical techniques and research methods. Out of the 864 abstracts that were analysed, 101 abstracts (12%) were on validation studies that examined one type of validity or another. The types of validity examined by the validation studies included face, content, convergent, divergent, discriminant, predictive, incremental, criterion, construct and cross-cultural validity.

Studies that examined general employee and organisational wellness (psychological, physical and emotional health) and those that specifically examined stress, burnout and coping mechanisms were recurrent among wellbeing abstracts across the entire twelve year period. There was an upsurge in the frequency of wellbeing abstracts from the 2004-2007 time period.

Professional development and scope of practice were the two most frequently covered themes in the professional practice global category across the entire twelve year period compared to professional ethics and future fit. The frequency of abstracts on professional ethics for industrial psychologists increased considerably in the 2004-2007 time period. The frequency of papers on future fit for the profession of industrial psychology increased substantially in the 2008-2011 time period.

The single most frequently and consistently researched theme on career psychology during this twelve-year period was career management or career development. Sub-themes that consistently emerged from abstracts examining this main theme included career advancement, career anchors, career planning, career guidance and career pathing.

Research in ergonomics tended to revolve around one overall theme, viz. performance shaping factors or factors that shape, influence, affect, cause or contribute to unsafe human actions in safety assessments. For example, cognitive characteristics, prescription drugs, attitude towards automation, automation or technology acceptance, human-machine/computer interface, physical working environments and work tools. In consumer psychology, customer attitudes, preferences and/or customer behaviour were the main themes covered by the abstracts.

4.2. Trends from electronic survey data

Results of the analysis of data collected via the electronic survey are presented graphically in figures 5 and 6. The electronic survey was designed to collect data from industrial psychologists on current and future industrial psychology research issues in South Africa. Fourteen industrial psychologists (N=14) responded to the survey questions. Given the extremely small sample size (N= 14) for the electronic survey, extreme caution was taken not to draw any substantive and concrete conclusions from the data. Further, the themes identified are considered more important than the number of people who mentioned them as proportions are likely to have changed with a larger sample. This is not considered a comprehensive list of research needs.

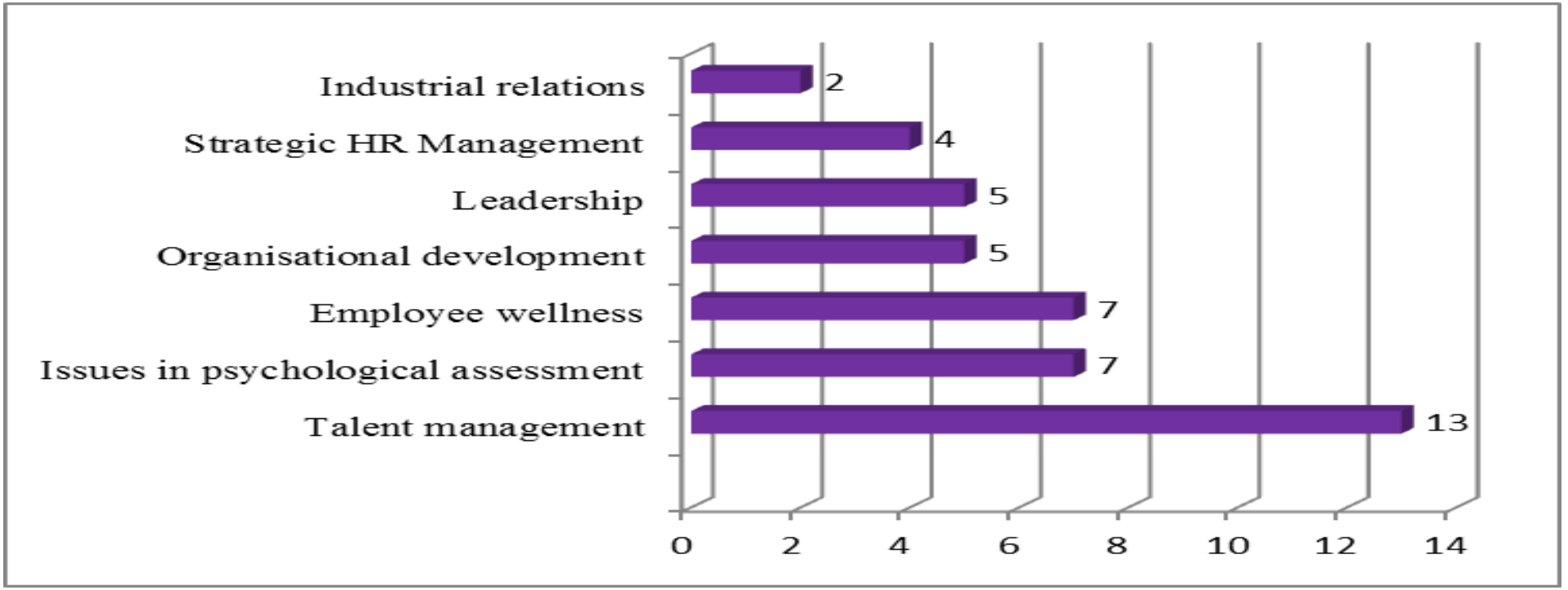

Figure 5. Electronic survey results: frequency counts of current research areas (N= 14)

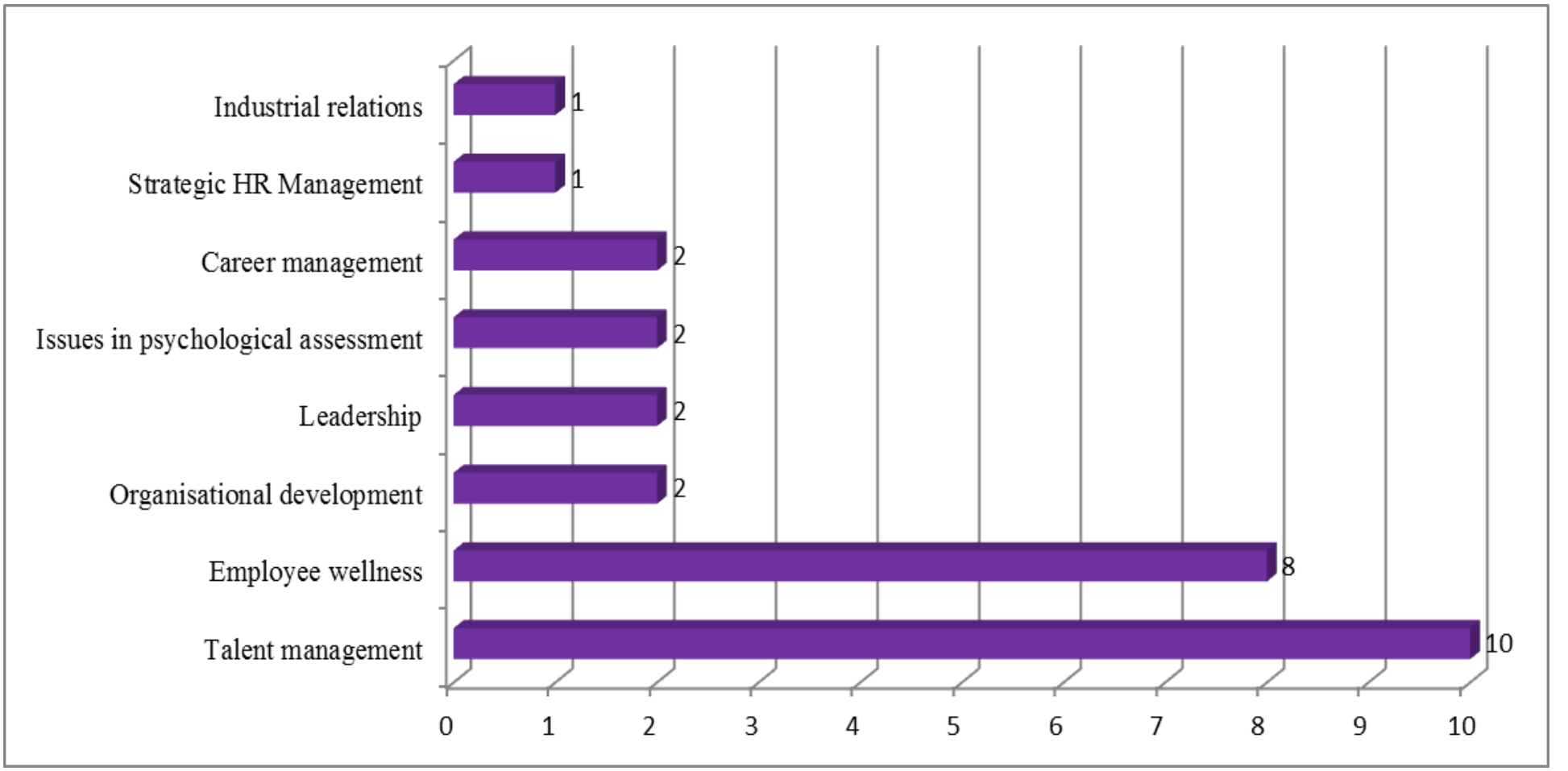

Figure 6. Electronic survey results: frequency counts of future research areas (N=14)

In the electronic survey, industrial psychologists identified issues they perceived should be the focus of current industrial psychology research. The most commonly mentioned theme was talent management (figure 5). Talent management was followed by issues in psychological assessment (debates, best practices, guidelines and trends in psychological assessment) and general employee wellness both of which were mentioned by the same number of industrial psychologists (n=7). Both leadership and organisational development were each mentioned by five industrial psychologists (n=5) and fell in third place among current research issues.

As shown in figure 6, results of the electronic survey revealed that talent management was the most commonly cited theme for future research (n=10) followed by employee wellness (n=8). No themes in ergonomics and consumer psychology were mentioned by the industrial psychologists.

4.3. Trends from telephonic interviews

Given the poor response rate to the electronic survey, telephonic interviews were adopted as an additional data collection method. Twenty three industrial psychologists participated in the telephonic interviews and the results of the data analysis are presented graphically in figures 7 and 8. The frequency counts of current research themes mentioned by practitioners in the telephonic interviews are in figure 7. The frequency counts of future research areas as anticipated by practitioners in the telephonic interviews are shown in figure 8.

The telephonic interviews required participants to identify important issues for current industrial psychology research in South Africa. As shown in figure 7, the most frequently cited theme in this regard was professional development for industrial psychologist (n=23), followed by talent management (n=13), organisational development (n=12) and issues in psychological assessment (debates, best practices, guidelines and trends in psychological assessment) (n=10). Below these in terms of frequency counts are themes with frequencies ranging from 2 to 6 and include job attitudes, career management, employee wellness,

strategic human resources management and leadership. Themes with the lowest frequency counts (n=1) include performance shaping factors, stress and burnout, and industrial relations.

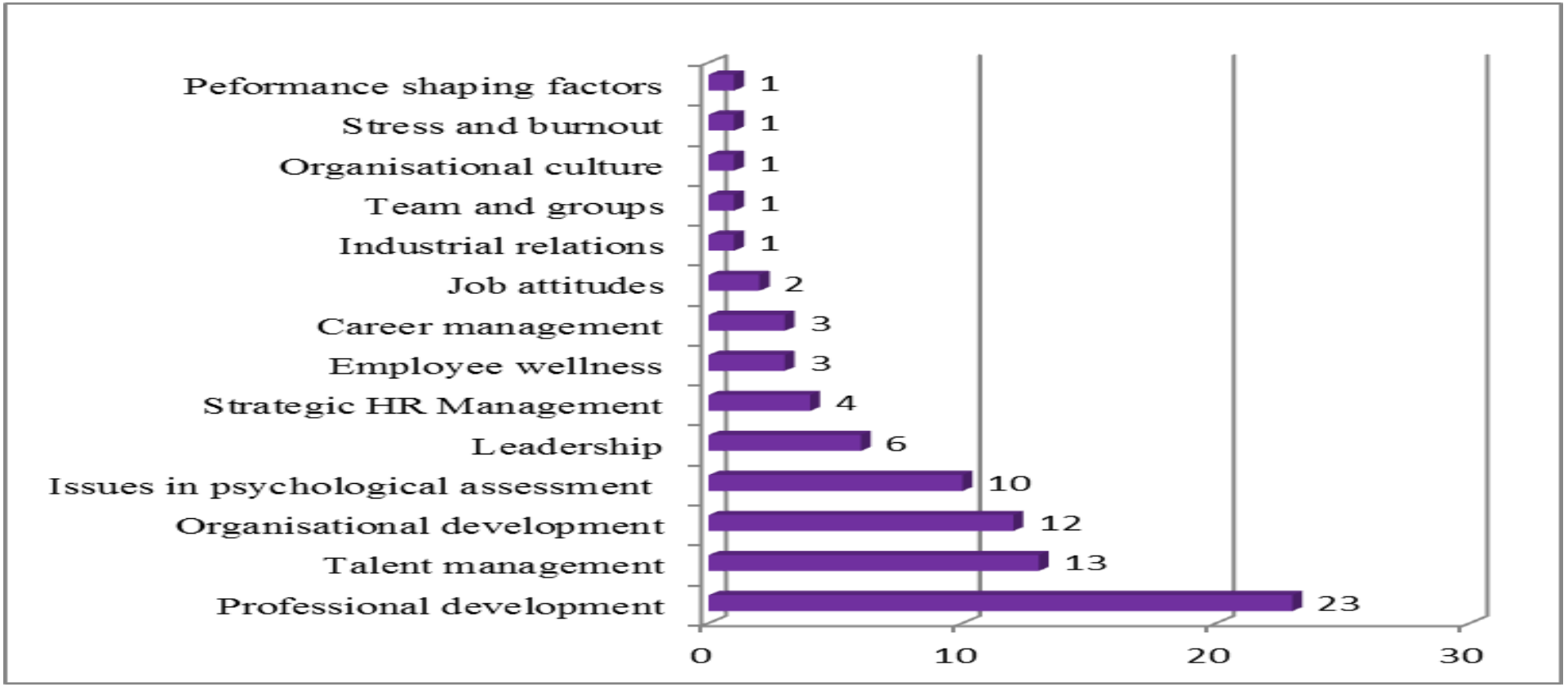

Figure 7. Telephonic interview results: frequency counts of current research areas (N= 23)

Figure 8. Telephonic interview results: frequencies of future research areas (N= 23*)*

With regards to future South African research in industrial psychology, participants were asked to specify issues they anticipated needed to be the focus of future research. As shown in figure 8, the most commonly suggested theme for future industrial psychology research was professional development for industrial psychologists (n=23). Talent management (n=9) and organisational development (n=7) were each mentioned by a reasonably modest number of industrial psychologists though the frequencies were less than 50% of the entire sample.

Employment equity issues were covered from various angles such as labour law/industrial relations, psychometric assessment, organisational development and employee wellness. For example, one industrial psychologist who was interviewed suggested that it is important for current industrial psychology research to focus on how Black Economic Empowerment (BEE) can be practised more effectively. The responses below are verbatim and came from two industrial psychologists. These responses demonstrate that employment equity, diversity and multicultural issues can be examined from three different perspectives, namely, psychological wellbeing, industrial relations and organisational effectiveness:

"How can BEE be practised more effectively. ***People who join organisations through BEE policies suffer immensely psychologically****. They are alienated. Currently BEE is useless" (*emphasis mine).

"Diversity research on the effects of stereotypes, affirmative action and employment equity, prejudices and discrimination on ***individual wellness, employee relations and organisational effectiveness"*** (emphasis mine).

Multicultural issues, employment equity and diversity are critical in the South African context and will be briefly discussed in this section. Analysis of SIOPSA abstracts revealed that these three issues were categorised under specific global categories namely organisational psychology, psychological assessment and wellbeing. The analysis showed that the three issues, which are specific themes in themselves, were frequently subsumed under other specific themes namely organisational transformation (organisational

change/development), diversity and diversity management, leadership, and organisational and employee wellness.

A few studies in the SIOPSA abstracts focused on either managerial or non-managerial employees' attitudes towards employment equity. Another strand of studies examined organisational implementation of employment equity requirements or of fair and valid assessment procedures with the ability to withstand scrutiny. Multicultural issues were frequently subsumed under psychometric assessment especially the cross-cultural validation of personality, cognitive and emotional intelligence tests. Out of the 101 SIOPSA abstracts dealing with test and/or construct validation, 27 focused on cross-cultural validation. It was noteworthy that most of these studies had as their objective the determination of the applicability of instruments or constructs to the South African multicultural context. In the present study, themes of multi-cultural issues, employment equity and diversity were generally placed under the global category with the best fit and this tended to be psychological assessment.

4.4. Summary of results

Analysis of SIOPSA abstracts from 2000 to 2011 revealed that the global areas were ranked in terms of frequency counts as follows: personnel psychology, organisational psychology, psychometric assessment, wellbeing, professional practice, career psychology, ergonomics and consumer psychology. Personnel psychology, specifically talent management, remains an important issue in industrial psychology in South Africa both currently and in the future. In the small samples for the electronic survey and the telephonic interviews, talent management was the most frequently mentioned personnel psychology theme. Analysis of SIOPSA abstracts revealed that organisational development, organisational culture, leadership and leadership development were the most frequently covered themes in organisational psychology. The same trend in organisational psychology was observed in the analysis of data from the electronic survey and the telephonic interviews. Psychological assessment emerged as one of the important global categories in industrial psychology especially personality assessment; test construction, measurement and validation; debates, best practices, guidelines and trends in psychological assessment; statistical techniques and

research methods; test fairness and bias in psychological assessment. Additionally, cognitive ability testing, emotional intelligence, internet-based assessment and assessment centres came out as important research themes in psychological assessment. Themes that featured most frequently in the wellbeing global domain focused on organisational and employee mental, emotional, and physical wellness; management of HIV/AIDS in organisations; stress and burnout; and work/family issues. Professional practice issues for industrial psychologists, namely scope of practice, professional ethics, professional development and future fit received increasing attention at SIOPSA conferences over the years. Professional practice issues were mentioned far less frequently in the electronic survey than in both SIOPSA abstracts and the telephonic interviews. Results from telephonic interviews showed that all twenty-three industrial psychologists interviewed considered professional development to be an important research area both currently and in the future. Recurring themes in career psychology abstracts tended to revolve around career management/development and associated sub-themes namely career planning, career pathing and career guidance. Career management issues were cited by industrial psychologists who participated in the electronic survey and the telephonic interviews. Technology and automation adoption, human reliability analysis and workload issues, all of which are subsumed under the concept of performance shaping factors, were frequently and consistently covered in the ten ergonomics abstracts published in the period 2000 to 2011. None of the industrial psychologists who responded to the electronic survey mentioned ergonomics as an important current and future research issue in industrial psychology. Among the 23 industrial psychologists who participated in the telephonic interviews, one mentioned ergonomics as an important area in current industrial psychology research; while three indicated that it was an important area in future research programmes. SIOPSA abstracts focusing on consumer psychology revolved around consumer behaviour, preferences and attitudes. None of the industrial psychologists participating in the electronic survey and the telephonic interviews made reference to consumer psychology. On the whole, it may be tentatively concluded that both ergonomics and consumer psychology have been under-represented at SIOPSA conferences over the years as compared to other industrial psychology global areas.

CHAPTER 5: DISCUSSION

5.1. Introduction

The present study set out to identify trends in the themes covered in SIOPSA conference presentations and to compare these with the research needs as perceived by South African industrial psychologists working in organisations. The purpose of this was to comment on the degree of congruence between research and practice needs and to determine the extent to which industrial psychology research has been addressing the needs of industrial psychology practitioners in South Africa. This will also serve as an indicator of the perceived relevance of research to the practical industrial psychology issues faced by practitioners in organisations. The secondary objective was to identify themes that should be addressed by industrial psychology research over the next five to ten years based on the perceptions of industrial psychologists surveyed. This would form the basis on which to propose a future research agenda relevant for industrial psychology research in South Africa.

5.2. Research themes and their match with practitioners' needs

This section discusses the match between industrial psychology research from SIOPSA abstracts and practitioner needs as expressed by industrial psychologists who took part in the electronic survey and the telephonic interviews. The findings from SIOPSA abstracts and the two surveys are discussed in relation to findings from previous South African industrial psychology research. The present study's findings will be discussed under their respective global industrial psychology categories and associated content areas.

5.2.1. Personnel psychology

Findings from the analysis of SIOPSA abstracts revealed that personnel psychology was the most frequently researched global category in industrial psychology from 2000 to 2011 and that personnel psychology abstracts increased during this period. More specifically, talent management emerged as the most frequently covered theme in personnel psychology from 2000 to 2011. This finding is in line with findings from the electronic survey and telephonic

interviews among practitioners regarding their current needs. Talent management was the only personnel psychology theme mentioned by practitioners who participated in the electronic survey and the telephonic interviews. Two observations need to be highlighted with regard to personnel psychology as a global area and talent management as a theme. Firstly, the upward trend in personnel psychology as revealed in the present study is contrary to the findings in Shreuder and Coetzee's (2010) study in which there was a relative decrease in personnel psychology research between 1990 and 2010. However, a closer look at the findings of the present study, especially after breaking down the twelve year period into three time periods (2000- 2003, 2004- 2007 and 2008- 2011), revealed that the percentage increase in the frequency of personnel psychology abstracts from the first time period to the second time period (2000- 2003 to 2004-2007) was 6% and was reduced to 1% from the second time period to the third time period (2004-2007 to 2008-2011). It may be concluded that though there was an increase during the twelve year period, the increase was much smaller in more recent years and this possibly indicates the general decrease observed by Shreuder and Coetzee (2010).

Secondly, there are several reasons which suggest that the plethora of studies on talent management were in response to practitioner needs in organisations. Talent management in South Africa is both a macro (national) and a micro (organisational) challenge (Kerr-Phillips & Thomas, 2009). This implies that retaining talent in the country is a key challenge facing South Africa and South African companies have to face the micro challenge of retaining talent in the organisations (Kerr-Phillips & Thomas, 2009). These considerations have made talent management a topical issue for industrial psychologists and talent management specialists in South Africa and may explain the increased frequency in the number of talent management presentations at SIOPSA conferences over the years.

For the past decade, South Africa has been facing a skills shortage blamed on several factors such as the apartheid legacy where people were not granted opportunities to develop themselves, the education system for Africans was under-funded and of poor quality (Breier, 2009), the problems of the current educational system which is still struggling to overcome decades of "neglect and dysfunction" under apartheid (Adler, 2002, p. 7-8, cited in Breier,

2009), the loss of senior experienced capacity largely as a result of affirmative action and the "brain drain" or emigration of talent to developed countries such as the United Kingdom, United States, Canada, New Zealand and Australia (Breier, 2009; Kerr-Phillips & Thomas, 2009). The brain drain that South Africa has been grappling with especially in the last decade is reflective of the global "war for talent" (Arnold & Randall, 2010, as cited in Shreuder & Coetzee, 2010, p. 4). The brain drain phenomenon has led to a shrinkage of the country's talent base especially knowledge-workers and technical personnel and hence has negatively impacted on its global competitiveness, economic and social growth (Kerr-Phillips & Thomas, 2009). It has been argued that talent management challenges namely skills shortages emanating from the brain drain and the lack of effective talent management strategies in South African local government, were responsible for the spate of service delivery protests that erupted in the country a few years ago (Koketso & Rust, 2012). This lends support to the assertion that talent management has not only negatively impacted on private organisations, but that the South African public service and local government is not exempt from the "war for talent" (Koketso & Rust, 2012). Therefore, it is proposed that talent management research has been based on real world developments. It is suggested that the strong emphasis on talent management in papers presented at SIOPSA conferences is consistent with the global, national and organisational trends in this area.

Talent management has emerged as a critical business issue for private and public organisations. The skills crisis implies that strong competition exists amongst private and public organisations to attract and retain the best talent. Kerr-Phillips and Thomas (2009) have argued that strong competition exists in South Africa among various organisations for the best available talent. The realisation that fierce competition exists for the best talent among South African organisations may partially explain the high frequency of talent management abstracts at SIOPSA conferences and the fact that it was the only personnel management theme mentioned by practitioners in the online electronic survey and telephonic interviews. This suggests that there has been a corresponding response to both macro and micro talent management issues in South Africa among industrial psychology researchers.

One of the pressing needs of industrial psychology practitioners in South Africa has been to demonstrate the utility of their profession to organisations and research has revealed that South African industrial psychologists regard talent management as one of the most important activities in which they demonstrate the value of their profession to organisations (Barnard & Fourie, 2007). This could be a possible explanation for the increased frequency in the number of SIOPSA abstracts addressing talent management issues within South African organisations and for the fact that it was the only personnel management theme cited by industrial psychologists who participated in the surveys. Based on this, it may be concluded that talent management research to date has been in response to the needs of industrial psychologists in organisations. The strong need to demonstrate the utility of their profession in organisations and the prevailing skills shortage-coupled with the urgent need to address it-may have provided an opportunity for industrial psychologists to validate their profession hence the increased frequency of talent management research presentations at SIOPSA conferences.

5.2.2. Organisational psychology

The findings of the present study revealed that the number of SIOPSA abstracts focusing on organisational psychology increased across the twelve year period. This is similar to the increase in published research in South African journal articles, masters and doctoral theses on organisational psychology since 1980 (Shreuder & Coetzee, 2010). The most frequently covered organisational psychology themes in SIOPSA abstracts were organisational development, organisational culture, leadership and leadership development, teams and diversity management. Among practitioners in the electronic and interview surveys, leadership and organisational development emerged as the most pressing practice needs in organisational psychology. Although less frequently mentioned among practitioners, organisational culture was also identified as an important current research theme. In this regard, it may be argued that there is congruence between SIOPSA research trends and the needs of practitioners in organisations as reflected in the surveys.

These findings are in line with previous South African research on organisational development, organisational culture and leadership. After the end of apartheid in 1994, new

labour laws were promulgated with far reaching consequences for employers and employees (Du Plessis, 2007). Consequently, it became imperative for organisations to implement changes (organisational development/change/transformation) and organisational re-engineering was undertaken to implement the changes in labour legislation which necessitated and resulted in organisational culture changes (Du Plessis, 2007). An empirical study conducted in South Africa in 2002 revealed that 30.88% of the sample (comprising Human Resources Managers, Line Managers, Chief Executive Officers, Consultants) (N=207) regarded organisational development as very important (Du Plessis, 2007). Over 65% of the sample indicated that organisational development and culture would still be key organisational issues in 2010. This result implies that the business leaders anticipated that organisational development and culture would assume higher levels of importance in South African organisations over the years. Therefore it is argued that organisational psychology research over the years, particularly in organisational development and organisational culture, has been responsive to practical business needs.

After the end of apartheid in 1994, leadership and leadership development became pressing business issues. It became imperative for South African business leaders to acquire relevant skills for effective management of post-apartheid organisational culture and business developments (Kerr-Phillips & Thomas, 2009). Historically, the South African workplace was dominated by Eurocentric, autocratic and hierarchical conglomerates characterised by Western value systems (Kerr-Phillips & Thomas, 2009). In the post-apartheid context, it is imperative that business leaders effectively transform and manage the now multicultural and ethnic workplace (Kerr-Phillips & Thomas, 2009). This makes leadership development and diversity management paramount within the South African organisational context. In diversity management, business leaders are expected to transform their organisations' cultures into different ones which are inclusive, encourage full participation by all and embrace diversity for competitive advantage (Kerr-Phillips & Thomas, 2009). These observations suggest that leadership development and diversity management are compelling organisational issues in South African businesses. It therefore appears that the increase in the number of studies on leadership, leadership development and diversity management was a response to the practical business issues in South African organisations. In spite of labour market conditions, managers are always a scarce human resource and it becomes pressing for

organisations to implement leadership and management development programmes (Shreuder & Coetzee, 2010). Given these considerations, it is argued that the high frequency of leadership papers at SIOPSA conferences was based on practical needs of practitioners and South African organisations.

5.2.3. Psychological assessment

Psychological assessment was the third most frequently covered global category in the sample of SIOPSA abstracts. The most commonly covered themes in psychological assessment were personality assessment, test construction and validation, best practices and guidelines in psychological assessment; issues of test bias and fairness; emotional intelligence and cognitive ability testing; cross-cultural validation of tests and constructs; and statistical techniques and research methods. The surveys among practitioners revealed a similar trend where psychometric assessment was regarded as an important current research issue though it did not have as high a frequency count as other global areas (e.g., personnel psychology, professional practice). Practitioners identified best practices and guidelines in psychological assessment, bias and fairness, current debates and general trends in psychological assessment as the themes that should be the focus of current research. Though researchers tended to focus on a wider spectrum of issues including statistical theory and techniques for test construction and validation as reflected in SIOPSA abstracts, it is evident that there is a match between research and practitioner needs.

These findings from SIOPSA abstracts and the surveys correspond with previous research which shows that during the 2000 to 2008 time period there was a substantial increase in the amount of research on assessment centres, personality assessment, development and validation of tests, structural equivalence of psychological tests and ability testing. A comparison of these research issues and the prevailing practical issues on psychological assessment in South Africa reveals that psychological assessment research in the last decade was driven by real organisational needs. These organisational needs emanated from various sources including the apartheid history of psychological assessment in South Africa which led to descriptions of the field as a “western approach” and an “apartheid instrument” (Dhladhla & de Kock, 2008); language, illiteracy and cultural heterogeneity in South Africa-

the country has 11 official languages and English is spoken by only 10% of the entire population (Maree & van der Westhuizen, 2009). The introduction of new laws including the Constitution of the Republic of South Africa, Act 108 of 1996, the Labour Relations Act, 66 of 1995 and the Employment Equity Act, 55 of 1998 (Mauer, 2000) contributed in making psychological assessment a prominent industrial psychology research issue during this period. Researchers have pointed out that the dearth of recently developed tests for a multicultural South African context (Maree & van der Westhuizen, 2009), the misuse and inconsistent use of test scores (Tustin, 2007) made psychological assessment a pressing research issue. It is submitted that the research on psychological assessment as reflected by SIOPSA abstracts was based on the needs of industrial psychology practitioners in South African organisations.

Some of the pertinent issues surrounding psychological assessment are captured in the observation by Dhladhla and de Kock (2008). These authors state that on the one hand, stakeholders such as test users (e.g., business, industry and practice) constantly interact and require increasingly effective, accurate and cost-effective assessment instruments that are perceived as fair. On the other hand, government and professional associations act as advocates of societal needs for the redress of past discrimination, socio-economic upliftment and ensuring compliance and adherence to professional and ethical guidelines. Academics, researchers and test developers are almost always found in the middle attempting to address both needs through application of rigorous scientific principles (Dhladhla & de Kock, 2008). To illustrate the importance of scientific rigour in test validation, out of a sample of 864 abstracts, 101 abstracts (12%) were on validation studies that examined face, content, convergent, divergent, discriminant, predictive, incremental, criterion, construct and cross-cultural validity.

The findings from SIOPSA abstracts showed an increasing amount of research being undertaken on personality assessment. This is in line with Shreuder and Coetzee's (2010) findings which showed a substantial increase in personality research from 1990. This also corroborates Landy and Conte's (2010) observation that personality characteristics are assuming an increasingly important role in understanding and predicting work behaviour in

multi-cultural societies and workplaces. This observation makes personality assessment a key workplace issue especially for industrial psychology practitioners.

5.2.4. Wellbeing

Results from SIOPSA abstracts revealed an increase in organisational and employee wellness research across the twelve year period, and a particularly large increase from 2004 to 2007. Among practitioners who participated in the surveys, employee wellness emerged as one of the areas that should be focused on by current research endeavours.

Previous research found a large increase in wellbeing studies from 2000 to 2008 (Shreuder & Coetzee, 2010). Further, the results from SIOPSA abstracts align with findings by Coetzee and Viviers (2007) which revealed that the bulk of wellbeing studies in South Africa were conducted after 2000. Research papers on coping mechanisms frequently appeared across the twelve year period at SIOPSA conferences and this corroborates findings in Coetzee and Viviers' (2007) study. The two authors state that while coping was a common research theme during the nineteen nineties, the trend continued into the new millennium with wellness remaining a popular theme among researchers (Coetzee & Viviers, 2007).

5.2.5. Professional practice

Findings from SIOPSA abstracts showed that the global industrial psychology categories could be ranked according to frequency counts, and professional practice was ranked fifth out of eight categories. Further, the findings indicated that the two most frequently covered themes in the professional practice domain were professional development and scope of practice. Data from the electronic survey showed that professional practice as a global domain, and more specifically the theme of professional ethics, had one of the lowest frequency counts. However, as mentioned previously, what is paramount is not the frequency but the identification by practitioners of the theme as an important subject for current industrial psychology research. The remaining three themes (professional development,

future fit and scope of practice) were not mentioned in the electronic survey. Results of the telephonic interviews revealed that professional practice was cited as the most important global domain requiring the attention of current research endeavours. All 23 industrial psychologists indicated that professional development should be the target of current research. It is apparent that researchers and practitioners agree that current industrial psychology research should focus on professional practice issues and more specifically on professional development.

Results of the present study suggest that there is congruence between research (as reflected in SIOPSA abstracts) and practice (as reflected in telephonic interviews) with regards to professional development. These findings are in line with the findings of separate research conducted by SIOPSA (2010) with a sample of 240 industrial psychologists. The findings in the SIOPSA research revealed that a substantial majority (70%) of the participants identified professional development (or continuing professional development) as essential for industrial psychologists. In the light of these findings from the present study and the research by SIOPSA (2010), it may be concluded that previous and current industrial psychology research on professional practice issues has been aimed at addressing practical concerns among practitioners.

There was a general increase of SIOPSA presentations on professional ethics for industrial psychologists during the twelve year period. Although practitioners in the electronic and interview surveys mentioned it less frequently, they identified professional ethics as one of the themes that should be addressed by current industrial psychology. These findings agree with the findings of separate research undertaken by SIOPSA's Future Fit Committee (2010) in which they found that 90% of the 240 industrial psychologists who participated in their study identified professional ethics as essential for success in their profession. It may be concluded that research in the area of professional ethics has been responsive to practitioners' needs.

The relevance of industrial psychology as a profession has received increasing attention among industrial psychologists. Rothmann and Cilliers (2008) have recommended that "industrial/organisational psychology should study its changing identity and dynamics constantly in order to stay relevant in the world of work" (p. 14). Issues regarding the relevance of industrial psychology in South Africa are subsumed under an umbrella theme called "future fit" (SIOPSA Annual Report, 2011). The findings of the present study revealed a general increase in the number of SIOPSA abstracts discussing the "future fit" of industrial psychology as a profession. However, none of the practitioners in the electronic survey and telephonic interviews mentioned "future fit" under current industrial psychology research. It is suggested that larger samples in the electronic and interview surveys could have produced different results. Alternatively, practitioners respond to the needs of organisations without being overly concerned about what the "ideal" role of industrial psychologists should be.

Previous research suggests that the "future fit" of industrial psychology is a pressing issue due to several factors in the South African context. These factors include the fragmentation of organisations as evidenced by the shift towards outsourcing, decentralisation and networked organisations; the emergence of the concept of intellectual capital whereby competition is based on innovation and generation of ideas, the requirement that organisations remake themselves in order to remain competitive, and the multicultural South African context which calls for competencies that supersede the current levels in order to cope with both private and public organisational needs (Renecle, 2001). Rothmann and Cilliers (2008) state that the "future fit" of industrial psychology has come in the spotlight because of the increased utilisation of information and communication technology, the globalisation of the economy, the changing nature of the workforce and of work itself from manual to more mental and emotional demands, the emergence of the 24-hour economy and the introduction of new production concepts such as team-based work, tele-work and sub-contracting. The recognition by researchers of the existence of these factors, their implications for the "future fit" of industrial psychology as a profession, and the simultaneous general increase in the number of SIOPSA abstracts on future fit, suggests a match between research and practice.

As mentioned above, Rothmann and Cilliers (2008) state that industrial psychology should be constantly examining its changing identity and dynamics in order to stay relevant in the world of work. One of the key requirements in ensuring that a profession remains relevant is the ability to meet customer (societal, organisational and individual) needs. Separate research by SIOPSA's Future Fit/Scope of Practice Committee (2010) confirms this observation. The SIOPSA study revealed that 75% of industrial psychologists who participated in the study (N= 240) regard the ability to meet customer needs and expectations as a key requirement for remaining relevant in organisations. This demonstrates that practitioners recognise the importance of delivering quality results and meeting customer expectations in establishing the relevance of the profession. It may be concluded that the research that was presented at SIOPSA conferences in the last 12 years on the "future fit" of industrial psychology was in response to practitioner needs as well as to developments in South African organisations and wider society.

5.2.6. Career psychology

Results of the present study showed that career psychology abstracts increased between 2000 and 2011. However, the increase was significantly lower than personnel psychology, organisational psychology and psychological assessment across the twelve year period. This finding is corroborated by Shreuder and Coetzee (2010) who found that published research in career psychology was consistently proportionally low across the six time periods covered by their research including in the 2000 to 2008 time period (the last time period of their research) which approximates the present study's 2000 to 2011 time period. A closer look at South African career psychology literature reveals that the area is plagued by a plethora of challenges that may explain why career psychology research has been under-represented compared to other global areas in industrial psychology. For example, it has been argued that career psychology lagged in redefining and repositioning itself in post-apartheid South Africa (Watson, 2010). It has been argued that South African career psychology has been preoccupied with identifying historically negative constraints rather than with addressing present-day negative realities (Watson, 2010). Additionally, it has been argued that South African career psychology has been branded as largely Eurocentric and ill-equipped to address the cultural diversity issues in South Africa (Watson, 2009).

5.2.7. Ergonomics

Findings of the present study showed that ergonomics was generally under-represented at SIOPSA conferences and had the second lowest frequency for the period. This finding is consistent with findings from other South African studies (e.g., Barnard & Fourie, 2007; Shreuder and Coetzee, 2010). In one study, conflicting views were observed on the contributions of ergonomics in industrial psychology and on whether the sub-field still belongs to the discipline and profession of industrial psychology (Barnard & Fourie, 2007). One group of industrial psychologists in the study expressed the view that ergonomics is not the domain of industrial psychologists and that the contributions of industrial psychologists in this field have faded with time. The other group expressed the opinion that ergonomics is a subfield of industrial psychology and is becoming even more relevant given the widespread use of technology in many industries such as mining and manufacturing (Barnard & Fourie, 2007). These conflicting views may underlie the low levels of ergonomics research over the years. Despite these conflicting views, the application of technology in the performance of personnel functions such as recruitment, selection, performance management, training and development raises issues with regards to human-computer/human-machine interaction and demands for comprehensive ergonomics research (Shreuder & Coetzee, 2010).

These findings from the present study are also corroborated by findings from a separate study by SIOPSA's Future Fit/Scope of Practice Committee (2010) which revealed that only 3.3% and 0.4% of the sample of industrial psychologists (N=240) mentioned "human factors and ergonomics" and "ergonomics" respectively as their areas of industrial psychology practice. Further findings from the SIOPSA study showed that ergonomics was described as typical work by only 9.2% of the respondents, while each of the other activities such as organisational development, change management, selection and assessment and coaching was described as typical work by over 30% of the sample. This suggests that there are a few industrial psychologists working in the area of ergonomics research. However, industrial psychologists undertaking research in ergonomics might be using other fora such as

international conferences and the *Journal of Ergonomics South Africa* to communicate their research.

5.2.8. Consumer psychology

Among all the industrial psychology global categories, consumer psychology was the most under-represented, contributing only 4 papers across the twelve years of SIOPSA conferences. These results are in line with the findings by Shreuder and Coetzee (2010) which revealed that there was very little consumer psychology research during the entire period of their study. Further, there was very little consumer psychology research in the 2000 to 2008 time period, which was the last of the six time periods in Shreuder and Coetzee's (2010) study, and which almost matches the present study's time period (2000 to 2011). Despite the fact that the Health Professions Council of South Africa (HPCSA) considers consumer psychology as a subfield of industrial psychology, specific South African studies examining developments in the discipline neglect consumer psychology (e.g., Barnard & Fourie, 2007; Rothmann & Cilliers, 2007; SIOPSA Future Fit/Scope of Practice Committee survey, 2010). Consumer psychology was conspicuously absent from the SIOPSA Future Fit/Scope of Practice Committee survey (2010) despite the fact that this study examined the field of industrial psychology which subsumes consumer psychology.

5.2.9. Integrating the findings

The findings of the present study generally indicate that there is a match between industrial psychology research and practice, and that SIOPSA research has been responsive to the needs of practitioners. However, despite this match, industrial psychology research has recently been labelled as being irrelevant to practical business needs (Augustyn & Cillié, 2008). Literature on this issue suggests that while there exists a match between researched topics and prevailing practice issues, the researched topics and applied models demonstrate little or no ecological value and fail to address real practical issues (Augustyn & Cillié, 2008). It has been argued that over the years applied problem-solving in industrial psychology has failed to achieve its intended objectives (Campbell, 1990, as cited in Augustyn & Cillié, 2008). This

argument is summarised by Campbell (1990, as cited in Augustyn & Cillié, 2008, p. 71) in the following words:

> If we have learned anything about applied problem solving in industrial and organizational psychology, it is that the implementation of 'programs' expected to operate as advertised, after the initial flurry of attention, is usually doomed to failure (p. 57)

This tentatively suggests that although research is being conducted in relevant global areas, the specific topics that are being researched are failing to practically address business needs and to build theory that can be applied in organisations. This state of affairs results from several factors.

According to Klimoski (1992, as cited in Augustyn & Cillié, 2008), researchers and practitioners have selective views of reality, the creation and application of knowledge. While researchers operate in terms of objective and measurable data, practitioners and managers operate based on experiential data, or practical business variables that they have to constantly grapple with. Researchers conceptualise problems and formulate solutions following specific stages, and place the utility of research findings in a broader context (Klimoski, 1992, as cited in Augustyn & Cillié, 2008). Models are formulated and put forward to address a challenge but in most cases this is done without conducting reality checks with the world of work. This implies that though the problem might be accurately formulated, it will lack practical relevance and synergistic impact (Augustyn & Cillié, 2008). A significant number of SIOPSA abstracts showed that there was an increasing amount of research being undertaken by practitioners working in private and public organisations as well as consulting firms. Given this observation, it would be reasonable to expect these practitioners to conduct reality checks in their own organisations before conducting research. If that is not the case, then one may conclude that the practitioners either fail or are reluctant to conduct reality checks in order to establish the practical relevance of their research. Alternatively, it is suggested that could this be a manifestation of the observation by Augustyn and Cillié (2008) that industrial psychologists conceptualise their own unique problems and are reluctant to adopt the real business variables by which managers must live or die (Augustyn & Cillié, 2008). Could it be argued that we are experiencing what Augustyn and Cillié (2008) observed that "applied

psychologists are slow learners" (p. 71). Additionally, one could ask whether this could be evidence of a shift towards what Augustyn and Cillié (2008) foresee happening within the discipline and profession of industrial psychology:

> A real danger…that the application of psychology in the world of work might be left to practitioners who are poorly trained theoretically and dangerously incompetent in the application of the body of knowledge of industrial psychology to real-world problems (p. 71).

Literature on the researcher-practitioner divide within South Africa suggests that industrial psychology research has mostly been undertaken by researchers or academics who do not possess a firm grasp of workplace realities (Augustyn and Cillié, 2008). This kind of research has been called "inquiry from outside" (Augustyn & Cillié, 2008, p. 73). This kind of research has been criticised for lacking practical relevance. Given this perspective, it is proposed that there is need for a shift to "inquiry from inside" whereby practitioners actively engage in scientific and professional work (Augustyn & Cillié, 200, p. 73). Practice becomes not only the application of scientific knowledge but another approach for theory and knowledge development as well as hypothesis testing (Augustyn & Cillié, 2008). This will ensure the development of job-related theories and knowledge (Augustyn & Cillié, 2008).

There have been assertions that most applied problem-solving interventions in industrial psychology are doomed to fail (Campbell, 1990, cited in Augustyn & Cillié, 2008) largely because they are not based on a clear understanding of the practical needs of organisations. The failure of such interventions makes utility analysis a pertinent issue among industrial psychologists. Research shows that industrial psychologists are increasingly being called upon to demonstrate and justify their contributions to organisations in rands-and-cents value. Further, the industrial psychology profession is being called upon to develop robust utility models to enable practitioners to highlight the monetary value added by industrial psychologists and their interventions (Barnard & Fourie, 2007).

With regards to utility analysis and utility models as discussed above, the question might be posed here as to who exactly demands that industrial psychologists should demonstrate and justify their contributions and interventions to organisations? Based on what has been discussed so far in the present study, it is apparent that the research and practice of industrial psychology is confined to serving the needs of leaders or practitioners, owners and shareholders in organisations (Van Vuuren, 2010). It may be argued, therefore, that the research and practice of industrial psychology is apparently done in the pursuit of success as defined by business leaders who recruit and remunerate industrial psychologists (Van Vuuren, 2010). It is argued that the debates on researcher-practitioner divide, the relevance of the profession of industrial psychology to organisations and the relevance of industrial psychology research to practitioners and managers in organisations, have been based on the perspectives of business leaders, shareholders and owners, and not of lower level employees. This argument agrees with Raubenheimer's (1974, cited in Van Vuuren, 2010) assertion that industrial psychology is viewed as a supporting science that assists industrialists and business leaders to reach their economic goals through the application (practice) of scientific knowledge (research).

5.3. Future research needs

This section discusses themes that were identified by practitioners as key industrial psychology research issues in the next 5 to 10 years. The future research needs are discussed in terms of global industrial psychology areas and their associated content areas. In light of the small sample sizes for the electronic survey and the telephonic interviews, the themes that emerged were considered more important than the frequencies of the responses. Again, it is likely that larger samples would have revealed different trends.

The proposed future research issues span all global industrial psychology categories except consumer psychology. Under personnel psychology, the identified future research themes were talent management, industrial relations and strategic human resources management. These results suggest that talent management is a critical issue among South African industrial psychologists and Van Vuuren (2010) refers to "ferocious competition for and

retention of human talent" (p. 4) thus showing the seriousness of talent management in the future. However, it has been argued that talent management research in South Africa is very scarce and that available research consistently shows that although there is recognition that talent management is a critical management initiative in driving business competitiveness, it only receives lip service from organisations and practitioners (Oosthuizen & Nienaber, 2010). Talent management initiatives in South Africa are hamstrung by not only the manner in which they are implemented but by the current skills shortages. It has been argued that the skills shortage hampers the creation of a deep reservoir of talent (Oosthuizen & Nienaber, 2010). This implies that talent management challenges facing South African organisations are likely to persist into the unforeseeable future. The need in this area appears to be on the development of effective interventions, or pragmatic research, rather than theory (Koketso & Rust, 2012; Oosthuizen & Nienaber, 2010)

As perceived by practitioners in the current study, five organisational psychology themes, namely, organisational development, organisational culture, leadership, job attitudes, teams and groups should be the focus of future industrial psychology research. Regarding organisational development, researchers have recommended that organisational development interventions in general and interventions to instigate organisational culture and values change should be researched on and implemented to build healthier work places (Rothmann & Cilliers, 2007). It has been argued that organisational development, change or transformation will remain entrenched in future research agendas (Booysen & Nkomo, 2010; Thayser, 2007). This is because of factors such as the cultural heterogeneity of the country, the changing workplace demographics and the introduction of Black Economic Empowerment policies and legislations (e.g., Labour Relations Act, 1995; Constitution of South Africa, 1996; Basic Conditions of Employment Act, 1997; Employment Equity Act, 1998; Skills Development Act, 1998; Skills Development Levies Act, 1999; Black Economic Empowerment Act, 2003 – including the BEE Industry Charters, 2004; BEE Draft Code of Practice, 2004 and the BEE Codes of Good Practice, 2007). Mounting competitive pressure, privatisation of parastatals and sub-contracting, casualization and informalisation are some of the factors that make organisational development a critical research issue in the future (Booysen & Nkomo, 2010).

Previous research shows that there is need for more research on leadership in South Africa (Rothmann & Cilliers, 2007). A number of studies have shown that leadership is correlated to organisational performance and competitiveness (Kirkpatrick & Lock, 1991; Kotter, 1990; Sarros & Woodman, 1993: Selter & Bass, 1990, as cited in Grobler, 1996). A plethora of factors within the South African context make leadership a key issue in organisations and these include globalisation whereby South African organisations found themselves thrust into the global arena to face international competition (Grobler, 1996; Shokane, Stanz & Slabbert, 2004); the implementation of affirmative action including employment equity programmes (Denton & Vloeberghs, 2003); restructuring, downsizing and rightsizing across the entire South African economy (Denton & Vloeberghs, 2003); the urgent need for effective and strategic leadership to implement organisational transformation after the end of apartheid (Denton & Vloeberghs, 2003; Jooste & Fourie, 2009) and diversity management (Kerr-Phillips & Thomas, 2009; Leonard & Grobler, 2006).

The practitioners indicated that psychological assessment will remain a part of future research agendas, specifically fairness and bias psychological assessment, internet-based testing, as well as the trends and guidelines in psychological assessment. Although psychological was mentioned among future research areas, it had extremely low frequencies. This is against a backdrop of recent South African research showing that psychological assessment continues to be a key research area especially considering the on-going endeavours to translate, adapt and validate various foreign psychometric instruments for application in South Africa (Paterson & Uys, 2005), and to establish the psychometric properties of various instruments for diverse population groups and generations in the workplace (Shreuder & Coetzee, 2010). Research has revealed that although industrial psychologists use psychological activities to differentiate themselves from other people management professions, they perform a host of other activities and psychological assessment is frequently not their main category of work (Benjamin & Louw-Potgeiter, 2008). It is argued that although a significant proportion of industrial psychologists are involved in psychological assessment, the majority of them spend a small proportion of their time on it, with the result that this area is less pressing than other work activities.

The arguments made above regarding the differentiating work activity of industrial psychologists introduce another dimension to the foregoing discussion. While it is acknowledged that psychological assessment is possibly the key differentiating work activity of industrial psychologists (Benjamin & Louw-Potgeiter, 2008), research has shown that industrial psychologists perform mostly general human resources work (e.g., succession planning, designing competencies, competency matrices, facilitating strategy development, human resources policy design and personnel administration) (Benjamin & Louw-Potgeiter, 2008). Despite this, industrial psychologists strongly identify with their profession (Benjamin & Louw-Potgeiter, 2008). It has been argued that the high degree of overlap in work activities of industrial psychologists and other personnel working in the area of human resources management has led to the profession's identity crisis (Benjamin & Louw-Potgeiter, 2008).

Industrial psychologists are increasingly being called upon to defend the validity of psychological instruments and to explain the financial implications of the use of selection instruments (Barnard & Fourie, 2007). It is apparent that industrial psychologists will be consistently required to demonstrate the utility of psychological assessment, which is reserved exclusively for psychologists, to organisations. This makes utility analysis an important issue for industrial psychologists. It is argued that the ability of the profession to demonstrate the utility of its tools and methods is pivotal in ensuring its continued relevance to organisations and society in general.

Research shows that wellbeing will continue to be an important organisational issue in the future. In the current study, general employee wellness, stress and burnout were proposed as important future research themes in the wellbeing domain. South African literature on wellbeing indicates that organisational and employee wellness issues are interconnected with developments in personnel, organisational and career psychology in ways that make wellbeing a pertinent global domain for future industrial psychology research. For example, the effects of the changing nature of work on employee wellness (Rothman & Cilliers, 2007; Shreuder & Coetzee, 2010); the implications of changes in the psychological contract on both organisational and employee wellness (Rothmann & Cilliers, 2007); the effects of

organisational changes such as downsizing, rightsizing, mergers, acquisitions and technological changes on organisational and employee wellness (Rothmann & Cilliers, 2007); the effects of leadership or its potential in facilitating individual employee wellness (Rothmann & cilliers, 2007); the effects of unemployment on employee wellness (Rothmann & Cilliers, 2007); and the use of psychometric tests to predict individual wellness (Rothmann & Cilliers, 2007). The continuing demands of a globally turbulent and highly competitive business environment will continue to negatively impact organisational and individual wellness hence making wellness a key research issue in the future (Rothmann & Cilliers, 2007).

Professional practice was the most commonly mentioned global category among proposed future research areas in industrial psychology. This is in line with the findings of the SIOPSA Future Fit/Scope of Practice Committee survey (2010) which revealed that continuing professional development was the most frequently mentioned theme than other themes such as professional strategy, quality assurance, professional relations and practice management. Close to 70% of the sample in the SIOPSA study (N=240) regarded continuing professional development as the most important factor in determining their success as industrial psychologists. This tentatively suggests that the future research need in this area is on the types of programmes that enable industrial psychologists to remain on the cutting edge of their discipline and profession.

5.4. Integrating findings on future research needs

It is not sufficient to investigate future research themes in industrial psychology (Rothmann & Cilliers, 2007). It is important to consider how research should be conducted (Rothmann & Cilliers, 2007). Results from analysis of SIOPSA abstracts showed that quantitative data analysis methods were employed more frequently than qualitative methods over the years to 2011. The number of abstracts that employed quantitative methods was consistently higher than abstracts that utilised qualitative methods every year from 2000 to 2011. Findings from the analysis of SIOPSA abstracts also showed that sample sizes used in the reported studies ranged from as small as one participant to 1.3million participants. This seems to reflect the

fact that industrial psychology research or knowledge development has mainly utilised quantitative or empirical (hypothesis testing, statistical analysis) designs to the neglect of qualitative designs. It is a reflection of established trends in industrial psychology research in South Africa even before 2000 (Pietersen, 2005). While this growth in quantitative research has been applauded, there are arguments that the development has been largely one-sided and consistently stuck to one paradigm of knowledge (Pietersen (2005). Pietersen (2005) depicts this as a tennis player who rises to fame largely on the strength of one aspect of the game, for example, his very powerful serve (depicting the empirical, quantitative paradigm). It raises the question: is the impressively powerful serve (hypothesis testing, statistically sophisticated empirical/quantitative research) all there is to the game of knowledge development and understanding human behaviour in organisations? (Pietersen, 2005). It has been argued that there is need to seriously consider other designs such as longitudinal and experimental design; knowledge development that is more encompassing to include knowledge input from other research pathways (Pietersen, 2005; Rothmann & Cilliers, 2007). There is need for inter-disciplinary research encompassing ideas from other knowledge disciplines such as sociology, philosophy, anthropology and linguistics (Pietersen, 2005).

The tendency of industrial psychology in South Africa to embrace the Western mode of quantitative or empirical research (positivist-empiricist mode of Western science) implies that the discipline and profession has been unable to evolve into and present itself as an indigenous, contextualised and representative body of knowledge (Pietersen, 2005). This is confirmed by the discipline's heavy reliance on European and Western theories, models and methods to the virtual exclusion of indigenous methods of understanding and sense-making (Pietersen, 2005). Furthermore, if the discipline of industrial psychology does not embrace additional knowledge perspectives, theoretical models, research strategies, methods and literatures over and above those currently being employed, it runs the risk of failing to renew itself as well as being or becoming more relevant in South Africa as an organisational science (Pietersen, 2005). In turn, it may be argued that more deliberate and sustained effort is needed in the teaching of the discipline, where everything begins, to include ideas from other knowledge areas such as sociology, philosophy, anthropology and linguistics (Pietersen, 2005). In summary, these issues have implications for the future of the discipline and profession of industrial psychology in South Africa.

5.5. Limitations and directions for future research

As in any research endeavour, there are always limitations. The present study had an extremely small sample size for the electronic survey. This compromised the ability to generalise the findings beyond this sample. While the telephonic interviews were initiated to compensate for the small sample size in the online electronic survey, a limited number of telephonic interviews was conducted due to time constraints and the limited availability of interviewees. Therefore data was not collected to the point where it was saturated and additional themes would probably have emerged in a larger sample. Therefore results regarding the psychologists' perceptions cannot be generalised beyond the current sample.

The telephonic interview responses were not tape recorded, rather they were recorded by handwritten notes. As far as possible responses were recorded verbatim, but some were summarised which resulted in summarised information. While in some instances it was possible to probe respondents, in others it was not because of time constraints and the researcher was left with summarised responses that were difficult to interpret and categorise.

Another limitation of the present study was its focus on SIOPSA abstracts only. Similar local (e.g., Shreuder & Coetzee, 2010) and international (e.g., Cascio & Aguinis, 2008) studies undertaken in the past were more comprehensive as they collected data from multiple sources such as published journal articles, masters and doctoral theses and covered longer periods of 40 years or more. However, this study deliberately focused on SIOPSA because it is the professional association advancing the needs and interests of industrial psychologists in South Africa.

Given that there were 497 abstracts that could have been placed into more than one global category but were placed in categories with the perceived best fit, it is possible that some global areas might have been under-represented or vice-versa. Although there is no evidence that there was systematic bias regarding the categorisation, this remains a potential limitation

of the study. Further, the categorisation included abstracts that did not represent strictly South African research and this might have inflated the frequencies for some global areas.

Future researchers interested in conducting a study of a similar nature would benefit from larger samples of industrial psychologists. In-depth face-to-face interviews could be useful in gaining an understanding of the needs regarding industrial psychology research and practicein order to understand industrial/organisational psychology research and practice in the South African context. Further, future studies could compare the views of practitioners in consulting firms with those of practitioners in line positions in private and public organisations.

The present study focused on future research in the next 5 to 10 years. However, it is recommended that longer periods of 20 years could provide richer information. This is because 5 to 10 years could be too short a time span such that not much change could be expected in that period. Therefore, the same issues identified now could still be important issues in the next 5 to 10 years.

5.6. Conclusion

Findings from the present study indicate that there was a general increase in SIOPSA research abstracts in the different global categories of industrial psychology. The three most frequently covered global areas were personnel psychology, organisational psychology and psychological assessment. The findings also showed that for the 12-year period reviewed, there was a match between the research presented at SIOPSA conferences and the general needs of practitioners in South African organisations. However, although research has been conducted in relevant global areas of industrial psychology, the specific topics that are being researched are failing to effectively address practical business needs and to build theory that can be applied in organisations. The results also revealed that practitioners proposed a wide spectrum of issues for future research spanning all global categories of industrial psychology except consumer psychology.

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BIOGRAPHICAL QUESTIONNAIRE: SECTION 1

Thank you very much for agreeing to participate in this study. Please complete the following questionnaire as carefully and honestly as possible. Section 1 requires biographical information but no identifying details are asked of you. Please **click** the appropriate box or type in the space provided.

1. Gender:

Male	Female

2. Age in years:

3. Home language**:**

4. Job level:

Top Management	Senior Management	Middle Management	Junior Management	Non-managerial

5. Are you registered with the HPCSA as a psychologist?

Yes	No

6. Category of registration (you can select more than one category if applicable)

Industrial Psychology	Clinical Psychology	Counselling Psychology	Educational Psychology	Research Psychology.

7. For how many years have you been working as an industrial/organisational psychologist?

8. Which term best describes your orientation as an industrial/organisational psychologist?

Solely an industrial/organisational psychology practitioner	Both a practitioner and researcher	Solely an industrial/organisational psychology researcher

9. If you described yourself as both practitioner and researcher, which of the following descriptions fits you best?

Practitioner first and researcher second	Researcher first and practitioner second

10. If you described yourself as both practitioner and researcher, what are the characteristics of the research you conduct with regards to the source/origin of the research, the research issues/topics and research methods? Type one response per box in the spaces provided below. If this is not applicable to you, please type "Not Applicable".

		Not Applicable

SECTION 2

INDUSTRIAL/ORGANISATIONAL PSYCHOLOGY RESEARCH IN SOUTH AFRICA

This section asks for your views on the relevance of industrial/organisational psychology research in South Africa. Please click the box with the appropriate response or type in the spaces provided. Once you have completed the questionnaire click on "submit' and your responses will be sent automatically to the database.

1. How do you keep abreast of current practice or professional and research issues in industrial/organisational psychology? Click on the response or responses that are most applicable to you.

Networking with general business managers	Reading/subscribing to local and international industrial/ organisational psychology journals
Networking with fellow professionals	Attending professional conferences
Networking with consulting firms	Through professional bodies/ societies e.g., SIOPSA, PsySSA
Networking with researchers/ academics in industrial/ organisational psychology	By completing "CPD" activities.
Other (please specify)	

2. In your opinion, what were the most important industrial/organisational psychology issues in South African organisations in the last 10 years? Indicate the most important areas in column labeled 1; indicate the importance of each area in column labeled 2 (1= important; 2 = very important; 3= extremely important); indicate the extent to which you think each of the areas received adequate research attention in column labeled 3 (0= none; 1= to some extent; 2= to a large extent; 3= to a very large extent).

1 Industrial/Organisational Psychology area	**2** Ranking/Importance	**3** Extent to which the area has received adequate research attention
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

3. In your opinion, what are the most important industrial/organisational psychology issues in South Africa currently and over the next 5-10 years? Indicate the most important areas in column labeled 1; indicate the importance of each area in column labeled 2 (1= important; 2 = very important; 3= extremely important); in column labeled 3, indicate the extent to which you think each of the areas is receiving adequate research attention (0= none; 1= to some extent; 2= to a large extent; 3= to a very large extent).

1 Industrial/Organisational Psychology area	**2** Ranking/Importance	**3** Extent to which area is receiving adequate research attention
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

4. In your view, apart from the areas in question 3 above that you have indicated as receiving no attention ("none") from research/researchers, are there any other important industrial/organisational psychology issues that you think have been neglected by industrial/organisational psychology research in South Africa?

Yes	No

5. List some of these "neglected issues" (referred to in question 4 above).

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

6. Does your organisation conduct its own internal research on issues relevant to industrial/organisational psychology?

Yes	No

7. What are the reasons for conducting internal organisational research? Click on the response or responses applicable to your organisation.

To develop new interventions and solutions
To develop new theories and advance knowledge in industrial/organisational psychology
To identify existing trends and perceptions
To evaluate new interventions and theories
Other (please specify)
Other (please specify)

8. SIOPSA conferences are one of the platforms where South African research is presented. Approximately how many times have you attended SIOPSA Annual Conferences in the last ten (10) years?

9. How often have you presented research papers at SIOPSA Annual Conferences in the last ten (10) years?

10. If you have attended a SIOPSA conference, how would you rate the relevance of the research presented to South African organisations?

1	**2**	**3**	**4**	**5**
Completely irrelevant	Irrelevant	Neutral	Relevant	Extremely relevant

SATURDAY SESSIONS BY CONTENT AREA

Careers/Mentoring/Socialization/Onboarding/Retirement

234 20/20 @ 20: Reflecting On Career Paths, Waldorf, 8:00 AM
244 Scholarly Impact and Career Success in Organizational Behavior, Continental A, 10:30 AM
269 Bridging Micro- and Macrodomains in I-O Psychology, Continental B, 12:00 PM
291 (Consulting) Women With a View, Boulevard C, 1:30 PM
298 The Next Generation of Mentoring Programs: Alternatives to Traditional Designs, Lake Ontario, 1:30 PM
302 Guiding Undergraduates to I-O: Attracting Talent and Providing Opportunities, Lake Erie, 2:00 PM

Coaching/Leadership Development

224 Utility of Noncognitive Assessments for Developing MBA Students, International Ballroom South, 8:00 AM
227 Executive Versus Emotional Intelligence: 21st Century High-Performance Strategy, Lake Huron, 8:00 AM
254 Continually Optimizing High-Potential Leadership Development, NW Exhibit Hall 5, 10:30 AM
271 Developing Culturally Competent Leaders: Current Theory, Research, and Lessons Learned, International Ballroom South, 12:00 PM
275 Anecdotal Schmanectodal: Applying Metrics to Leadership Development, NW Exhibit Hall 5, 12:00 PM

Consulting Practices/Ethical Issues

256 Posters 1 to 3, SE Exhibit Hall, 10:30 AM
258 The Evolving U.S. Educational System: How Can I-O Psychology Contribute? Williford A, 10:30 AM

Counterproductive Behavior/Workplace Deviance

251 New Developments in Interpersonal Aggression Research: The Role of Moderators, Lake Michigan, 10:30 AM
289 Questioning the Boundaries of Civility and Incivility in the Workplace, Williford A, 1:00 PM

Emotions/Emotional Labor

221 Understanding and Managing Workplace Emotions: Measures, Predictors, Processes, and Outcomes, Continental A, 8:00 AM

Global/International/Cross-Cultural Issues

228 One Size Doesn't Fit All: Cross-Cultural Competence Across Organizational Contexts, Lake Michigan, 8:00 AM
235 International Perspectives on Ethical Leadership, Williford A, 8:00 AM
249 The Age of Internationalization: Developing an International I-O Curriculum, Lake Erie, 10:30 AM
261 Poster 1, Astoria, 11:00 AM
287 Humanitarian Work Psychology (HWP): Achievements, Applications, and Controversies, Marquette, 1:00 PM
294 The Amazing Race: Implementing Assessment Centers Cross Culturally, Continental C, 1:30 PM

Groups/Teams

229 Teams in the Wild: Do Our Theories and Methods Fit? Lake Ontario, 8:00 AM
252 Teams in Space—A New Frontier for Organizational Psychology, Lake Ontario, 10:30 AM
267 "Human Factors" in Project Management Research: Where Is I-O Psychology? Boulevard C, 12:00 PM
272 Macrocognition: The Next Frontier for Team Cognition Research, Lake Ontario, 12:00 PM
295 In Extremis Teams: What Do We Need To Know? International Ballroom South, 1:30 PM
310 Examining Multilevel Organizational Phenomena Through Social Network Analysis, Williford A, 3:30 PM

Inclusion/Diversity (e.g., sexual orientation, race, gender)

236 Culture and Diversity: Current and Future Theoretical and Practical Approaches, Williford B, 8:00 AM
256 Posters 4 to 7, SE Exhibit Hall, 10:30 AM
259 Not a Good Ol' Boy? Gender Issues in the Workplace, Williford B, 10:30 AM
274 Leadership and Diversity: A Conversation Between Practitioners and Academics, NW Exhibit Hall 1, 12:00 PM

Innovation/Creativity

264 Posters 1 to 10, SE Exhibit Hall, 11:30 AM

Job Analysis/Job Design/Competency Modeling

242 Teaching Old Dogs New Tricks: Incorporating Competencies Into Talent Systems, Boulevard AB, 10:30 AM
248 Distinguished Scientific Contributions Award: How to Publish Like Heck (and Maybe Even Enjoy It), Joliet, 10:30 AM

Job Attitudes/Engagement

243 The Compelling Business Case for Corporate Social Responsibility, Boulevard C, 10:30 AM
256 Posters 8 to 10, SE Exhibit Hall, 10:30 AM
264 Posters 11 to 14, SE Exhibit Hall, 11:30 AM

Judgment/Decision Making

240 Posters 1 to 2, SE Exhibit Hall, 9:00 AM
260 Theme Track: Improving Decision Makers' Consumption of Data-Based Findings, Williford C, 10:30 AM
264 Posters 15 to 16, SE Exhibit Hall, 11:30 AM
285 Theme Track: Lightning Round: Telling a Compelling Story With Data in Five Minutes, Williford C, 12:30 PM
304 Theme Track: What Convinces Us, Doesn't Necessarily Convince Execs: What They Didn't Teach You in Grad School About Influencing, Williford C, 2:00 PM
311 Theme Track: Closing Keynote and Wrap-up: People Analytics: Is It All In Our Heads? Williford C, 3:30 PM

Leadership

253 Victims and Observers: Individual Differences as Moderators of Abusive Supervision, NW Exhibit Hall 1, 10:30 AM
255 Leadership and the Assessment of Leadership Potential, PDR 2, 10:30 AM
261 Posters 2 to 4, Astoria, 11:00 AM
264 Poster 17, SE Exhibit Hall, 11:30 AM
277 The Future of Shared Leadership Research, Waldorf, 12:00 PM
290 Understanding the Implications of Modern Organizational Changes for Team Leadership, Boulevard AB, 1:30 PM
297 Leadership: The Highs and Lows, Lake Huron, 1:30 PM
312 Closing Plenary Session, International North, 4:30 PM

Legal Issues/Employment Law

256 Posters 11 to 12, SE Exhibit Hall, 10:30 AM

Measurement/Statistical Techniques

237 Theme Track: Introduction and Learning in Action: Leveraging Data From the Employee Experience to Drive Performance, Williford C, 8:00 AM
278 Innovative Uses of IRT: Approaching Old Challenges in New Ways, Williford A, 12:00 PM
307 Rasch Measurement Versus IRT: A Practical Debate, Boulevard C, 3:30 PM

Motivation/Rewards/Compensation

233 Compensation, PDR 2, 8:00 AM
264 Poster 18, SE Exhibit Hall, 11:30 AM
303 Posters 1 to 17, SE Exhibit Hall, 2:00 PM

Occupational Health/Safety/Stress & Strain/Aging
222 What the Doctor Ordered: Strategies for Linking I-O and Healthcare, Continental B, 8:00 AM
270 Occupational Stress and Safety: Products of a Research Collision, Continental C, 12:00 PM
283 Posters 1 to 15, SE Exhibit Hall, 12:30 PM

Organizational Culture/Climate
226 Resources for Managing Hourly/Nonmanagement Talent: A Balancing Act, Lake Erie, 8:00 AM
264 Posters 19 to 20, SE Exhibit Hall, 11:30 AM
276 Environmental Sustainability, PDR 2, 12:00 PM
299 Shifting an Organization From Current to Desired Culture, PDR 2, 1:30 PM

Organizational Justice
256 Posters 13 to 25, SE Exhibit Hall, 10:30 AM
280 Social Identity and Reactions to Unfair Treatment of Others, Lake Erie, 12:30 PM

Organizational Performance/Change/Downsizing/OD
218 Posters 1 to 3, Astoria, 8:00 AM
241 Theme Track: People Decisions That Support and Shape Organizational Strategy: Science and Art, Williford C, 9:00 AM
284 Helping Organizations Become Nimble: Lessons Learned From Energy Industry I-Os, Williford B, 12:30 PM

Performance Appraisal/Feedback/Performance Management
263 Multirater Feedback and Personality Profiles: Best Practices for Comprehensive Approaches, Lake Huron, 11:30 AM
286 Posters 1 to 4, 1:00 PM
303 Posters 18 to 31, SE Exhibit Hall, 2:00 PM

Personality
219 Conditional Reasoning Tests: Where We Are and Where We're Going, Boulevard AB, 8:00 AM
239 M. Scott Myers Award for Applied Research in the Workplace: Computer Adaptive Personality Scales: Military and Private Sector Applications, Joliet, 9:00 AM
264 Posters 21 to 25, SE Exhibit Hall, 11:30 AM
279 S. Rains Wallace Dissertation Award: Beyond the Limits of Self-Reports: An "Other" Perspective on Personality, Joliet, 12:30 PM
296 Norming Personality Assessments: Challenges and Practical Considerations, Joliet, 1:30 PM

Research Methodology (e.g., surveys)
220 Randomized Experimental Tests of Mediation Models, Boulevard C, 8:00 AM
266 Longitudinal Research: Combining Recent Advancements, Boulevard AB, 12:00 PM

Staffing (e.g., recruitment, applicant reactions, selection system design, succession planning, workforce planning)
232 Applicant Reactions Around the Globe: Belgium, Greece, United States, Vietnam, NW Exhibit Hall 5, 8:00 AM
240 Posters 3 to 28, SE Exhibit Hall, 9:00 AM
245 Lessons Learned From Large-Scale Hiring Systems Transformations, Continental B, 10:30 AM
247 Reevaluating Assessment Centers: New Statistical Approaches, New Insights, International Ballroom South, 10:30 AM
281 Busted? Resumé Fraud, the Background Investigation, and Best Practices, Lake Huron, 12:30 PM
292 Variety Is the Spice of Validation: Moving Beyond "Traditional" Criteria, Continental A, 1:30 PM
293 Buyers and Vendors Discuss RFPs in Human Capital Consulting, Continental B, 1:30 PM
300 Why Applicant Perceptions Matter: A Practical View, Waldorf, 1:30 PM

Strategic HR/Utility/Changing Role of HR
230 I-O Interventions That Go Viral, Marquette, 8:00 AM
256 Posters 26 to 27, SE Exhibit Hall, 10:30 AM
262 Distinguished Early Career Contributions Award: How Did I Get From There to Here? Thorny Roads to Being Productive, Joliet, 11:30 AM
265 Talent Alignment Strategies for Supporting Strategic Organizational Shifts, Williford B, 11:30 AM
273 Building a Workforce to Meet Immediate Societal Needs, Marquette, 12:00 PM

Teaching I-O Psychology/Student Affiliate Issues/ Professional Development
225 Distinguished Teaching Contributions Award: Facilitating Student Engagement, Joliet, 8:00 AM
231 "Mastering" Your Career Path: Perspectives Across Career Stages, NW Exhibit Hall 1, 8:00 AM
238 I-O, I-O, It's Off to Work—or School—We Go? Boulevard AB, 9:00 AM
250 Past, Present, and Future of Master's Programs in I-O, Lake Huron, 10:30 AM
256 Posters 28 to 30, SE Exhibit Hall, 10:30 AM
257 So, You Think You Want to Be a Consultant? Waldorf, 10:30 AM
288 Funding Options for Graduate Students: Alternatives to Waiting Tables, NW Exhibit Hall 5, 1:00 PM
306 Stay or Go: Value of a Master's in Applied Settings, Boulevard AB, 3:30 PM

Testing/Assessment (e.g., selection methods; validation; predictors
223 Can Faking Ever Be Overcome in High-Stakes Testing? Continental C, 8:00 AM
240 Posters 29 to 30, SE Exhibit Hall, 9:00 AM
246 Detecting Deception: Techniques for Assessing Applicant Faking on Personality Measures, Continental C, 10:30 AM
256 Posters 31 to 32, SE Exhibit Hall, 10:30 AM
264 Posters 26 to 27, SE Exhibit Hall, 11:30 AM
268 Validation in the Real World: Land Mines to Avoid, Continental A, 12:00 PM
283 Poster 16, SE Exhibit Hall, 12:30 PM
301 Employment Interview Research: Where Do We Go Next? Williford B, 1:30 PM
309 Gap Analysis: Using Assessments to Measure and Develop Workforce Capabilities, Waldorf, 3:30 PM

Training
282 Serious Games and Virtual Worlds: The Next I-O Frontier!, Lake Michigan, 12:30 PM

Work and Family/Non-Work Life/Leisure
283 Posters 17 to 29, SE Exhibit Hall, 12:30 PM
305 Posters 1 to 4, Astoria, 3:30 PM
308 Methodological Issues in Work–Family(/Nonwork) Research, Lake Huron, 3:30 PM

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

HUMAN RESEARCH ETHICS COMMITTEE (SCHOOL OF HUMAN & COMMUNITY DEVELOPMENT

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: MORG/11/006 IH**
PROJECT TITLE:	Industrial/Organisational psychology in South Africa: Research and practice
INVESTIGATORS	Moyo Nelson
DEPARTMENT	Psychology
DATE CONSIDERED	15/05/11
DECISION OF COMMITTEE*	Approved

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

DATE: 07 July 2011

CHAIRPERSON
(Professor M. Lucas)

cc Supervisor:

Fiona Donald
Psychology

DECLARATION OF INVESTIGATOR (S)

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

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

This ethical clearance will expire on 31 December 2013

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX D

Psychology
School of Human & Community Development
Private Bag 3, Wits 2050, South Africa. Telephone: +27 11-717-4500/2/3/4. Fax: +27-11-717-4559

….June 2011

Good day,

My name is Nelson Moyo and I would like to invite you to participate in research I am conducting for the purpose of obtaining my Masters degree in Industrial/Organisational Psychology at the University of the Witwatersrand. My study focuses on the extent to which industrial/organisational psychology research is meeting the needs of organisations in South Africa. To do this, I am conducting an on-line survey of industrial psychologists' perceptions of research needs and will be comparing these with research conducted in South Africa over the last few years. This should contribute to developing a research agenda that is relevant to South African needs. As you are an industrial/organisational psychologist, I would like to invite you to participate in this research.

Participation will involve completing an on-line questionnaire which will take approximately 15 minutes. Participation is voluntary and anonymous as no identifying details will be made available when you submit your responses. Responses will be analysed collectively, not individually, to determine trends.

If you are willing to participate in the study, please click on the following link: http://uamp.wits.ac.za/surveys/survey.php?sid=95, or copy and paste it onto your browser and it will lead you to the on-line questionnaire. Once you have completed the questionnaire, click on "submit" and your responses will be sent automatically to the database.

A summary of the results will be available from February 2012 at the following link: **http://nelsonresearch2011.blogspot.com/.** Should you require further information or assistance, please feel free to contact me or my supervisor, Fiona Donald. Thank you for taking the time to read this letter and should you participate, thank you for your assistance.

Nelson Moyo
nelsontmoyo12@gmail.com

Fiona Donald
Fiona.Donald@wits.ac.za