PURPOSES FOR USING PSYCHOLOGICAL INSTRUMENTS IN LOSS OF INCOME CLAIMS

by

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DECLARATION

I, Monica Evelyn Botha, student number 3474-393-6, declare that "Purposes for using psychological instruments in loss of income claims" is my own work, that it has not been submitted before for any degree or examination in any other university, and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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Monica Evelyn Botha November 2010

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SUMMARY

Despite the wide spread use of psychological instruments in the forensic context, there is a dearth of research on the purposes for using it. A qualitative case study approach was adopted in this study to explore the purposes for which industrial psychologists use psychological instruments in loss of income claims.

The research study comprised of two phases. Firstly, a literature review was used to provide some background on psychological assessment in the forensic context. The literature review described the historical development of forensic psychology, what psychological instruments are and how they are used in the forensic context. The forensic context, in which industrial psychologists operate, was also described. Furthermore, the initial conceptual framework to outline the context of the next phase of the research was illustrated.

The second phase was an exploratory study that made use of a multiple-case study approach. The main research aim was to explore the purposes for using psychological instruments in loss of income claims by industrial psychologists. Another aim was to explore the psychological instruments used. The final aim was to explore the kind of information that is needed in the forensic context, which is not currently available by means of existing psychological assessment. Case study data was collected by conducting semi-structured interviews with four industrial psychologists. Each interview represented a case to be analysed. The multiple-case study data gathered were then analysed using coding, within-case analysis and across-case analysis. The findings indicate that psychological instruments are used for the following purposes: (1) to add value to the quantification of a loss of income claim; and (2) to provide information that is required on the specific situation and circumstances surrounding the claim. Furthermore, the research findings also revealed that the purpose of using a psychological instrument to add value is influenced by internal factors of the psychological instrument as well as situational characteristics of the legal matter at hand. Through the exploration of the purposes for using psychological instruments, specific instruments used could be identified. Another finding included the existence of a perception that the psychological instruments currently available in South Africa are inadequate to provide the information required in the forensic context. The findings also revealed the kind of information that is needed.

Recommendations were made for future research and industry-related practices.

Keywords: Psychological instrument; forensic context; constructivist paradigm; exploratory qualitative research; multiple-case study; industrial psychologist; loss of income claim; forensic psychology; semi-structured interviews; and within- and across-case analysis.

OPSOMMING

Ten spyte van die wydverspreide gebruik van sielkundige instrumente in die forensiese konteks, is daar 'n gebrek aan navorsing oor die doel daarvan. Hierdie studie het 'n kwalitatiewe gevallestudie benadering gevolg om die doel waarvoor bedryfsielkundiges sielkundige instrumente gebruik in verlies aan inkomste eise te verken.

Die navorsing het bestaan uit twee fases. Eerstens, is ‘n literatuuroorsig gebruik om die agtergond rondom sielkundige assessering in die forensiese konteks te voorsien. Die literatuuroorsig beskryf die historiese ontwikkeling van forensiese sielkunde, wat sielkundige instrumente is en hoe dit gebruik word in die forensiese konteks. Die forensiese konteks waarin bedryfsielkundiges werksaam is, is ook beskryf. Verder is die inisiële konseptuele raamwerk om die konteks van die volgende fase van die navorsing te skets, geïllustreer.

Die tweede fase was ‘n verkennende studie wat gebruik gemaak het van ‘n veelvuldige gevallestudie benadering. Die belangrikste doel van die navorsing was om die doeleindes waarvoor bedryfsielkundiges sielkundige instrumente in verlies van inkomste gebruik, te verken. ‘n Verdere doel was om die sielkundige instrumente wat gebruik word, te verken. Die finale doel was om die tipe inligting wat in die forensiese konteks verlang word, maar nie tans deur bestaande sielkundige assessering beskikbaar is nie, te verken. Gevallestudie data was ingesamel deur semi-gestruktureerde onderhoude met vier bedryfsielkundiges te voer. Elke onderhoud het ‘n geval verteenwoordig om te ontleed. Die meervoudige gevallestudie data wat ingesamel is, was ontleed deur middel van kodering, binne-geval analise en kruis-geval analise. Die bevindinge dui daarop dat sielkundige instrumente vir die volgende doeleindes gebruik word: (1) om waarde toe te voeg tot die kwantifisering van ‘n verlies aan inkomste eis, en (2) om inligting wat benodig word in ‘n spesifieke situasie en omstandighede rondom die eis, te voorsien. Verder het die navorsingsbevindinge ook aan die lig gebring dat die doel vir die gebruik van ‘n sielkundige instrument om waarde toe te voeg, beïnvloed word deur interne faktore van die sielkundige instrument sowel as die situasionele eienskappe van die geregtelike saak op hande. Deur die verkenning van die doel vir die gebruik van sielkundige instrumente, is spesifieke instumente wat gebruik word geïdentifiseer. Nog ‘n bevinding was dat daar 'n persepsie bestaan dat die sielkundige instrumente wat tans in Suid-Afrika

beskikbaar is, onvoldoende is om die inligting wat in die forensiese konteks benodig word, te verskaf. Die bevindinge het ook die aard van die tipe inligting wat benodig word, onthul.

Aanbevelings is gemaak vir toekomstige navorsing en industrie-verwante praktyke.

Sleutelwoorde: Sielkundige instrument; forensiese konteks; konstrukstivistiese paradigma; verkennende kwalitatiewe navorsing; meervoudige gevallestudie; bedryfsielkundige; verlies aan inkomste eis; forensiese sielkunde; semi-gestruktureerde onderhoude; en binne-geval en kruis-geval analise.

CHAPTER 1: A SCIENTIFIC ORIENTATION TO THE EXPLORATIVE STUDY

Psychologists are becoming increasingly involved in helping to solve various legal disputes (Lewis, 2009; Wingate & Thornton, 2004). This relatively new and interesting application has huge financial rewards for those psychologists willing to spend long hours conducting interviews and research, writing reports and preparing for courtroom testimony (Lewis, 2009). Since psychological assessment is also a vital part of a proper forensic evaluation process (Ackerman, 1999; Archer, Buffington-Vollum, Stredny & Handel, 2006; Borum & Grisso, 1995; Gregory, 2007; Kaiser, 1986; Lewis, 2009; Naylor, Vorster, Cronjè & Donaldson, 2009), only psychologists knowledgeable about all the aspects of psychological instruments are likely to obtain credibility in the industry. In order to find out more about the use of psychological instruments in the forensic context, this dissertation focuses on exploring the purposes for which industrial psychologists use psychological instruments in loss of income claims.

Chapter 1 contains the background to the use of psychological instruments in the forensic context and suggests various theoretical and practical reasons for conducting the study. It describes the problem statement, aims and the paradigm perspective applicable to the study. Chapter 1 also describes and substantiates the research design and the research method used, and concludes with a chapter layout and summary.

1.1 BACKGROUND TO AND RATIONALE FOR THE STUDY

The use of psychological instruments seems to be a widely accepted practice in the 21st century forensic context (Archer *et al*., 2006; Camara, Nathan & Puente, 2000; Lally, 2003). It appears that a variety of instruments are used to address various types of civil litigation issues (e.g. personal injury claims) and criminal cases (e.g. insanity defences). Psychological instrument data as evidence in a court of law, however, is not always readily accepted by those practising in the legal system (Hess, 1999).

Specific standards or criteria for admitting psychological instrument data as evidentiary support in a court of law seemingly evolved from a type of trial-and-error period during which psychologists tried to apply psychology and psychological assessment in legal settings

or contexts. In 1921, an American psychologist's testimony that was based on psychological test data was rejected, because the test used had not yet been established as reliable and valid (Bartol & Bartol, 2004). Again in 1923, the counsel for a murder defendant attempted to introduce the results of a type of lie-detector test, but the Court of Appeals of the District of Columbia rejected it, ruling that "... the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs" (Frye v United States, 1923). In 1993, the Daubert v. Merrell Dow Pharmaceuticals case generated new guidelines for determining the admissibility of expert testimony (Gregory, 2007). These guidelines stated that the scientific theory and technique used must be testable, must have been subjected to peer review and publication, have an established error rate and be generally accepted in the relevant scientific field (Gregory, 2007). These criteria highlighted the need for forensic psychologists to obtain knowledge of the accepted practices of their peers to ensure that useful and admissible information was presented to the legal system.

Internationally, much research has been conducted to identify psychological instruments commonly used in the forensic context and to determine their role in certain legal issues (Archer *et al*., 2006; Camara *et al*., 2000; Lally, 2003; Mullen & Edens, 2008; Peyrot, 1995). In a study conducted by Mullen and Edens (2008) it was found that the *Personality Assessment Inventory* was used mostly to aid in the assessment of a broad range of psychopathology and that the admissibility of the instrument was never an issue in any of the cases they reviewed. Peyrot (1995) studied the interpretive practices of a forensic psychiatry organisation using the *Minnesota Multiphasic Personality Inventory*. Research studies such as these contribute to the practical knowledge needed to inform psychologists' choice of psychological instruments. Such knowledge may also enhance psychologists' credibility in the legal context if they are aware of and can explain and substantiate the strengths and weaknesses of the instruments they use in the specific context of application, namely the legal field. However, many of these and other studies fail to distinguish between the different types of psychologists and the instruments they use, thereby to some degree hindering transference of field-related knowledge.

In South Africa, psychologists also make use of psychological assessment to help those practising in the legal system with decision-making (Louw & Allan, 1998; Roos & Vorster, 2009). Unlike the situation in the USA where courts use instrument criteria as derived from

court cases such as that of Frye and Daubert (Archer *et al*., 2006; Gregory, 2007), South African courts have yet to define specific criteria for the admissibility of psychological instrument data in court cases (Allan & Louw, 2001). However, the use of psychological instruments in South Africa is governed by professional and ethical guidelines as established by governing bodies such as the Psychometric Committee of the Professional Board of Psychology (Foxcroft, Roodt & Abrahams, 2001; Naylor *et al*., 2009). It is also governed by some labour legislation (the Employment Equity Act 55 of 1998; the Labour Relations Act 66 of 1995). Under the Medical, Dental and Supplementary Health Services Profession Act 56 of 1974, only registered psychologists and psychometrists are permitted to perform psychological acts which include the use of psychological instruments. Psychologists in South Africa are also required to make use of instruments that have been classified as psychological instruments (Health Professions Council of South Africa, 2006). The Labour Relations Act 66 of 1995 and the Employment Equity Act 55 of 1998 prohibit psychological assessment unless the instrument is scientifically shown to be valid and reliable, can be applied fairly to all employees and is not biased against any employee or group. Heilbrun (1992) advises forensic psychologists not to use instruments with a reliability coefficient of less than 0.80. These standards for using psychological instruments can be applied to any legal matter because any instrument's reliability and validity may be questioned in court and this can enhance the psychologist's contribution (Schmidt, 1989; Van Rensburg, Vorster & Burke, 2009). Although standards for the admissibility of instrument data in South African court cases can be derived from ethical and labour related rules and guidelines, limited research aimed at identifying instruments commonly used in the South African forensic context or identifying the purposes the instrument are used for, is available. According to Roos and Vorster (2009), the uses of psychological assessment are clearly an area that merits research.

Industrial psychologists seem to be involved in legal disputes occupying a majority of the South African court's time. In 2008, third party claims (motor vehicle accident claims) made up more than 60% of all matters set down for trial on any given day in the Pretoria High Court (Adams & Adams Attorneys, 2008). The number of third party claims in South Africa also seems to increase every year. According to the Road Accident Fund's annual report (2008), the number of claims registered increased from 170 418 claims in 2007 to 267 133 claims in 2008. Medical negligence claims are also becoming more prominent (De Vries Shields Chiat Attorneys, n.d.). Apart from being involved in personal injury claims, industrial

psychologists' scope of work in the forensic setting extends to divorce actions and employment relationship disputes (Lewis, 2009). In all these different legal cases it is the task of the industrial psychologist to assist in quantifying the loss of income the individual has sustained or will sustain in the future (Lewis, 2009). Industrial psychologists, like other psychologists, also use psychological instruments as part of the forensic evaluation process (Moodie, 1992). Unfortunately, according to some industrial psychologists, overtesting is a reality in the forensic context (Personal communication, February 2009).

Given the limited available research on the use of psychological instruments in the South African forensic context, this research study set out to explore the purposes for which industrial psychologists use psychological instruments in loss of income claims. The need for conducting the research was twofold. Theoretically, it addressed a topic identified by Roos and Vorster (2009) as an area that merits further research; it builds on and adds to existing research by focusing on a specific group of forensic psychologists namely, industrial psychologists. The findings of this study may inspire further research on the topic so that the apparent gap in available research can be reduced. In practical terms, the research was deemed necessary to inform industrial psychologists of the typical practices of their peers to ensure that useful and admissible information is presented to the legal system, thereby also enhancing their credibility in the legal context. Furthermore, it was deemed necessary to inform future forensic industrial psychologists' choice of instruments; to diminish overtesting; to identify possible limitations in the type of psychological instruments currently available; and to inspire the development of new psychological instruments. The research would also contribute to the development of the researcher as an aspiring forensic industrial psychologist.

1.2 PROBLEM STATEMENT

The lack of integrated information currently available on the use of psychological instruments in the South African forensic context seems to have a number of detrimental consequences. Firstly, although forensic psychologists in South Africa appear to be selective about the use of psychological instruments (Louw & Allan, 1998), there is little South African research evidence distinguishing between the different types of psychologists and the instruments they use. Since different types of psychologists fulfil different roles in legal settings (Roos & Vorster, 2009), one would obviously expect them to use psychological instruments for

different purposes. This lack of information may have contributed to Louw and Allan's (1998) reported finding that psychologists feel that their forensic training is inadequate and that they receive little guidance from their profession. Secondly, overtesting seems to be a reality among psychologists practising in the forensic context (Naylor *et al*., 2009). Not only is overtesting considered to be an unethical practice, but it can also increase the claimant's legal costs (Naylor *et al*., 2009).

The research problem was defined as follows:

- What are the purposes for using psychological instruments in the forensic context by a specific type of forensic psychologist?

From the problem statement the following research questions were formulated:

- How did forensic psychology develop?
- What are psychological instruments and how are they used in the forensic context?
- What does the forensic context in which the industrial psychologists operate entail?
- What are the specific purposes for which psychological instruments are used by industrial psychologists involved in loss of income claims?
- What psychological instruments are used by industrial psychologists involved in loss of income claims?
- What kind of information is needed in the forensic context, which is not currently available in existing psychological assessment?

1.3 AIMS

The following general and specific aims were formulated:

1.3.1 General aim

The general aim of this research was to explore the purposes for which industrial psychologists use psychological instruments in loss of income claims.

1.3.2 Specific aims

The study was conducted in two phases namely a literature review and an empirical study.

The specific aims relating to the literature review were to describe

- the historical development of forensic psychology
- what psychological instruments are and their use in the forensic context
- the forensic context in which industrial psychologists operate

The specific aims relating to the empirical study were to explore

- what the specific purposes are for which industrial psychologists use psychological instruments in loss of income claims
- what psychological instruments are used by industrial psychologists in loss of income claims
- what kind of information is needed in the forensic context, which is not currently available by means of existing psychological assessment

1.4 THE PARADIGM PERSPECTIVE

The research was based on the constructivist paradigm. Constructivist claim that truth is relative and that it is dependent on one's perspective. According to Crabtree and Miller (1999) this paradigm recognises the importance of the subjective human creation of meaning, but does not reject the outright some notion of objectivity. Pluralism and not relativism is stressed with focus on the circular dynamic tension of the subject and the object (Crabtree & Miller, 1999). Furthermore, constructivism is built on the premise of a social construction of reality (Searle, 1995). This allows for close collaboration between the researcher and the participant, while enabling participants to voice their point of view or to tell their stories (Crabtree & Miller, 1999; Yin, 2003). Through this the participants are able to describe their views of reality and this enables the researcher to formulate an in-depth picture towards better understanding the participants' actions (Baxter & Jack, 2008; Yin, 2003).

The constructivist paradigm was applicable to both the literature review and the empirical research study. The literature review, allowed the researcher to construct a theoretical

framework that was used to outline the context of the empirical research study in an exploratory way (Darke, Shanks & Broadbent, 1998; Yin, 2003). The paradigm was applicable to the empirical research study because the researcher believed that industrial psychologists' experience in the forensic context may have influenced their opinions, feelings and attitudes towards the instruments used and the purposes for which they are used in loss of income claims.

1.5 RESEARCH DESIGN

The type of research, unit of analysis, research approach and method used in this study are elucidated below.

1.5.1 Type of research

The research is descriptive and exploratory. Descriptive studies include in-depth description of a specific individual, group, situation or social object (Mouton & Marais, 1994). This applied to the literature review as it described the research context in terms of how forensic psychology developed, the types of psychological instruments used in the forensic context and the types of loss of income claims industrial psychologists are involved in. This provided the background and framework for conducting the exploratory research study (Yin, 2003).

Exploratory qualitative research was used to explore the purposes for which industrial psychologists use psychological instruments in loss of income claims. This type of research was deemed appropriate since the goal of exploratory studies is "... to make preliminary investigations into relatively unknown areas of research" (Durrheim, 2006, p. 44). An exploratory qualitative approach is also commonly used to describe phenomena about which little is known and to gain new insights into it (Cavaye, 1996; Given, 2006). Furthermore, qualitative research provides a naturalistic study of phenomena as they unfold in real-world situations (Durrheim, 2006). A qualitative study thus allowed for the gathering of industrial psychologists' opinions, feelings and attitudes regarding the purposes for which psychological instruments are used in loss of income claims.

A quantitative research approach would have been simpler if the aim had been to simply determine the instruments used and their frequency of use, because many studies have already been conducted (Archer *et al*., 2006; Camara *et al*., 2000; Lally, 2003; Mullen & Edens, 2008; Peyrot, 1995). However, a qualitative approach seemed more appropriate to explore the purposes for which psychological instruments are used in loss of income claims since there seemed to be a wealth of contextual-related issues that influence what type of psychological-related information is needed.

1.5.2 Unit of analysis

Concerning case study research, Miles and Huberman (1994, p. 25) define a case as "... a phenomenon of some sort occurring in a bounded context" and explain that "... the case is in effect, the unit of analysis". In this research study a "case" was defined as a single interview with an industrial psychologist regarding the applicability of psychological instruments in loss of income claims. The case was the unit of analysis because this was the level at which the data were gathered and analysed.

1.5.3 Research approach

A case study is defined as an empirical inquiry that investigates a contemporary phenomenon within its natural setting (Harling, 2002; Yin, 2003). According to Yin (2003) a case study should be used when (a) the researcher cannot manipulate the behaviour of those involved in the study; (b) the researcher wants to cover contextual conditions because it is believed that they are relevant to the phenomenon under study; or (c) the boundaries are not clear between the phenomenon and context. Because all these applied to the research topic, a case study approach was used.

The researcher used a multiple-case study approach, which allowed a more thorough exploration of the research topic by identifying similarities and differences within and between cases (Yin, 2003). An advantage of using a multiple-case study is that the evidence created from the study is considered robust and reliable. However, it can also be time-consuming and expensive to conduct (Yin, 2003).

One of the pitfalls associated with case study research is that there is a tendency for researchers to attempt to answer a question that is too broad or a topic that has too many objectives for one study (Baxter & Jack, 2008). Yin (2003) suggests placing boundaries on a case to prevent this from happening. Two boundaries were used for the multiple-case study namely activity and context. Research participants would only be questioned regarding the use of psychological instruments in the forensic context. Another essential component of designing rigorous case studies is the development of propositions (Yin, 2003). A proposition is a speculation the researcher makes to what he or she expects the findings of the research to be, based on the literature reviewed or any other earlier evidence obtained. Case studies that include specific propositions enable the researcher to place limits on the scope of the study and increase the feasibility of completing the research project (Yin, 2003). Exploratory case studies usually do not entail propositions (Rowley, 2002). Although the exploratory multiple-case study did not entail any propositions (as to be expected), it did entail specific research aims that limit the scope of the study to some extent.

Another important element of case study research is the construction of a conceptual framework (Miles & Huberman, 1994). Based on the literature reviewed, an initial conceptual framework was constructed (see 2.7). Miles and Huberman (1994) state that the conceptual framework serves two important purposes: (a) It identifies who will and will not be included in the study; and (b) it describes what relationships may be present based on logic, theory or experience. Baxter and Jack (2008) suggest that the initial framework does not display relationships between the constructs as this should develop from analysing the case study data The final conceptual framework is described as the anchor of the study and is referred to at the stage of data analysis (Baxter & Jack, 2008). From the literature review the researcher constructed an initial conceptual framework. A final conceptual framework based on the findings of the research, was also constructed and illustrated.

Although the case study approach is often praised for its ability to explore gathered data in a real-life environment, it does have some disadvantages (Yin, 2003). Case studies have been criticised as lacking in rigour, providing no basis for scientific generalisation and as being too long and difficult to conduct (Yin, 2003). In this regard, the researcher used various methods to ensure reliability and validity throughout the study. The researcher also designed the study

to provide for analytical generalisation and prepared herself for a long and difficult research process.

1.5.4 Research method

This research was conducted in two phases, each with different steps. Phase 1 refers to the literature review, while phase 2 entails the exploratory multiple-case study research.

In phase 1 a review of recent and classical literature was conducted to describe the existing body of research literature within the research area (Darke *et al*., 1998). The literature review described how forensic psychology developed, the types and uses of psychological instruments in the forensic context and the types of loss of income claims industrial psychologists are involved in. This provided the empirical study with a conceptual framework that gave some direction and structure for the initial set of questions the researcher asked and positioned the research questions within the context of the existing literature (Aaltio & Heilmann, 2009; Darke *et al*., 1998).

Phase 2 entailed the exploratory multiple-case study research. The planning of the research setting, the entry and establishment of researcher roles, sampling, data-collection methods, recording of data, data analyses and the strategies employed to ensure quality data and reporting, are described in the sub-sections below.

1.5.4.1 Research setting

According to Irvine and Gaffikin (2006) the choice of research setting is influenced by the purpose of the research, the scope it offers for the collection of rich data, the area of inquiry the researcher initially finds appealing and the possibility of gaining access.

The main research question determined the research setting. The research took place in the forensic context in which industrial psychologists in the Pretoria area work. Industrial psychologists from different private practices specialising in forensic work participated in the research. All the participating industrial psychologists mentioned that the majority of the loss of income claims they deal with are Road Accident Fund claims (motor vehicle accident

claims), followed by medical negligence claims, insurance claims and loss of support claims. The scope of the chosen setting would therefore provide for rich data collection. Furthermore, the research setting was influenced by an "ease of access" factor (Irvine & Gaffikin, 2006, p. 122). The researcher chose the setting because she was familiar with various forensic private practices in the Pretoria area and believed that gaining access would not be too difficult.

1.5.4.2 Entry and establishing researcher roles

Obtaining or negotiating access to a research setting is crucial to the success of the research study (Irvine & Gaffikin, 2006; Kelly, 2006). Kelly (2006) explains that this can be a difficult process depending on the nature of the study. Whilst some settings are relatively open, other settings can be more difficult to get into (Kelly, 2006). Reasons for allowing a researcher access to the setting vary widely, from altruism to self-interest (Irvine & Gaffikin, 2006). Because the researcher had previously been employed in a private practice involved in forensic work, opportunities to enter the research setting were gained by mentioning the researcher's interest in the forensic field and the contribution the industrial psychologists would be making to the research study if they agreed to participate. Furthermore, the researcher fully explained the aim of the research and its advantages. In return for their participation, the researcher undertook to send a copy of the findings in the format of a research article to each participant upon completion of the research and examination processes.

In qualitative studies the researcher typically seeks to develop expected patterns as well as unanticipated patterns among the phenomena studied (Harling, 2002). Because of this the researcher's role was to be the primary instrument for collecting and analysing the data (Terre Blanche, Kelly & Durrheim, 2006). This required the researcher to develop a set of questions for collecting the data and to analyse and synthesize the data while remaining conscious of the effect of her presence.

In fulfilling the role of data collector, the researcher needed to develop and use specific interpersonal skills during interviewing. Skills needed, included to be sensitive and to learn to listen, look, question and probe (Botha, 2001; Terre Blanche *et al*., 2006). At first, the researcher found it difficult not to voice her personal opinions during the pilot interview.

However, this became easier during the other interviews when the researcher realised how much the research results depended on the participants' responses (Botha, 2001; Maykut & Morehouse, 1994). The researcher's role was to probe and not to voice her own opinions or thoughts. During the rest of the interviews, the researcher made use of some of her skills as a job interviewer to fulfil the requirements of interpersonal skills needed. In this regard Maykut and Morehouse (1994, p. 81) advocate that "[T]he characteristics of a good qualitative interviewer are much the same as those that characterise people who are able to tactfully inquire and hear what others are saying". Furthermore, rapport was established through positive verbal encouragers such as "hmm", "ok" and "uh-uh" as well as nonverbal encouragers such as maintaining good eye contact, smiling and displaying open body language (Blurner cited in Miller & Glassner, 1997, p. 100). This ensured that participants felt comfortable with the process and competent to respond to interview questions and probes.

The researcher's presence can have a profound influence on the findings of the research study (Maykut & Morehouse, 1994; Terre Blanche *et al*., 2006). The researcher became very aware of the potential influence of her presence when she was asked about her experience in the forensic field during the introduction phase of the pilot interview. Although this gave some credibility to the researcher, it was noted that the interviewee's responses to the questions were primarily geared towards accepting that the researcher had an in-depth knowledge of forensic industry activities by often saying *"you know"* during responses. Although this may have simply been a way of talking, the researcher took care not to disclose previous involvement in a private practice involving forensic work until after the other participants had answered the questions pertaining to the empirical study.

1.5.4.3 Sampling

Case studies are often found through the researcher's own network (Aaltio & Heilmann, 2009). Having worked in the forensic context the researcher knew where to get hold of the contact details of industrial psychologists practising in the forensic context. *The quantum yearbook 2009* compiled by Kogh (2009) lists the contact details of various types of psychologists practising in forensics. The list of industrial psychologists (earnings' experts) was used as a sampling framework. Kogh (2009) lists 47 industrial psychology private practices doing forensic work in different areas like Pretoria-Witwatersrand-Vereniging, the

Eastern Cape, Cape Town, Natal, the Free State and North West. Some of these practices have up to six industrial psychologists involved in quantifying loss of income claims.

The number of cases to be studied depends on the focus of the research question and on the research setting (Aaltio & Heilmann, 2009; Darke *et al*., 1998). While too few cases limit generalisation, too many leads to data overload (Harling, 2002). A multiple-case design was deemed appropriate for the research as the aim was partly theory building – the researcher wanted to add to existing literature. In this regard, Eisenhardt (1989) suggests that between four and ten cases are desirable for theory building. Taking this into account, the researcher initially sampled four cases.

The sampling of the four cases was purposive. Purposive sampling implies that not only is sampling depended on the availability of cases and the willingness of participants to participate, but that cases and/or participants are typical of the population selected (Durrheim & Painter, 2006). The availability and willingness of participants to participate was established by means of telephonic requests. Participants were "typical" of the population selected as they were industrial psychologists practicing forensics. Furthermore, a criterion of a minimum of three years' psycho-legal experience was used to sample participants. This allowed sampling of similar participants or cases for literal replication (Yin, 2003).

In this multiple-case study research a point was reached during the combined process of data gathering and preliminary analysis when no new data was being added. The researcher became aware that the same issues were being repeated in the participant's responses to questions. This indicated a point of saturation (Aaltio & Heilmann, 2009; Yin, 2003). Consequently no further participants were approached or used in this study. Contingency plans, in case saturation was not attained, included contacting and requesting other industrial psychologists practising forensics in the Pretoria and even the Johannesburg area to be available to participate in the research study if it became necessary to obtain further data.

1.5.4.4 Data-collection method

This section provides a description of the interview as data collection method, the applicability of its use in this research study, the formulation of the interview questions as well as a description of the administration procedure followed.

Case study research usually makes use of multiple sources of data such as interviews, documentation, archival records and direct observations, which enhances data credibility (Patton, 1990; Yin, 2003). However, the large amount of data that requires management and analysis can overwhelm researchers finding themselves "lost" in the data (Yin, 2003). This factor, as well as the researcher's inability to gain access to psycho-legal reports because of legal issues (Personal communication, May 2010), compelled the researcher to make use of only one type of data source namely, interviews. Interviews are the most common data gathering method for a case study approach (Aaltio & Heilmann, 2009).

The researcher telephonically contacted five potential participants, requesting them to participate in the research. The four industrial psychologists, who agreed to be interviewed for the research, indicated suitable times, dates and venues of their availability. This is in accordance with Henning, Van Rensburg and Smit (2004) who point out that researchers must schedule interviews for a specific time and place. All the interviews were conducted face-to-face and lasted approximately 45 minutes to an hour.

The interview, as data gathering method, has some specific characteristics. The interview is defined as an encounter or dialogue between the researcher and a subject, in which the latter is asked a series of questions relevant to the topic of the research (Davies, 2006; Henning *et al.*, 2004). The interview is also described as an information gathering tool that is adaptable, capable of being used with all kinds of subjects in many kinds of research and can often be used when no other method is possible or appropriate (Davies, 2006; Kerlinger & Lee, 2000; May, 2001). May (2001) describes that the aim of an interview is to deepen one's understanding of the subject's history, experiences, opinions, values, attitudes and feelings. The subject's responses to the interview questions constitute the raw data to be analysed at a stage by the researcher (Henning *et al.*, 2004).

Various forms of interviews exist, such as informal, structured, unstructured, naturalistic and semi-structured (Davies, 2006; Kelly, 2006). These forms of interviews differ with regard to the type of information that is gathered – either straightforward factual information or depth of information loaded with the subject's feelings, opinions or experiences (Kelly, 2006). Semi-structured interviews were used to collect data, because this method "... is a more natural form of interacting with people" (Kelly, 2006, p. 297) and it allows the researcher to ask some specific questions whilst remaining free to probe for more clarification and elaboration (May, 2001).

The validity and reliability of data gathered by using the interview technique are sometimes regarded with a certain amount of suspicion (Botha, 2001). To ensure that the interview responses were valid, the credibility of the participants (industrial psychologists) was determined by asking them questions about their professional experience in the forensic field. Questions posed during the initial telephonic request to participate in the research study included:

- "How long have you been practicing as a registered industrial psychologist?"
- "How long have you been doing forensic work?"
- "What is the approximate number of psycho-legal reports you submitted between January 2009 and December 2009?"
- "Approximately how many times did you appear in court as an expert witness between January 2009 and December 2009?"

Validity may further be compromised during the analysis of the interview data. Botha (2001) cautions that the analysis of interview data may not necessarily be valid owing to language differences between the interviewer and the interviewees or even because of intended sabotage on the part of some participants. To ensure the validity of the analysis of interview data, Neuman (2000) advises that more than one person and even some of the participants be involved in the data analysis process. To prevent these apparent pitfalls, the researcher conducted all the interviews in English (because English is the international business language and the researcher and the participants are fluent in it) and urged participants to be truthful. Although the researcher was primarily responsible for the analysis of the interview data, she also liaised with the research supervisors and a qualitative researcher.

Interview questions were formulated around the aims of the empirical study that were the key questions the researcher wanted to pursue in the qualitative interview (Maykut & Morehouse, 1994). It is recommended that interview questions not be too general, that is must be phrased in simple language, it should avoid ambiguity and language that encourages vague responses (Kerlinger & Lee, 2000; May, 2001; Welman & Kruger, 2003). Furthermore, Kelly (2006) describes common questioning errors during interviewing. All the guidelines and recommendations were considered during the formulation of the interview questions.

Welman and Kruger (2003) advise that an experienced researcher or expert should check the interview questions with the aim of spotting flaws. The initial interview questions were discussed with the research supervisors as well as an experienced qualitative researcher. These questions were also piloted to ensure that they would elicit the right data and be asked in the right way (Kelly, 2006; Welman & Kruger, 2003). Comments from the research supervisors were integrated and ambiguous questions, which were detected during the pilot interview, re-formulated or left out of the interview schedule.

The main research question inspired the following four interview questions:

- "What does your forensic evaluation process usually entail?"
- "What is your attitude towards psychological assessment in the forensic context?"
- "Tell me about the purposes for which you use psychological instruments in loss of income claims?"
- "What is your opinion on overtesting in the industry?"

Regarding the other two empirical research aims, the researcher simply asked:

- "Can you elaborate more on the specific psychological instruments that you use when quantifying loss of income claims?"
- "Tell me about the information that you feel is needed in loss of income claims, which is not currently available by means of existing psychological instruments?"

All the above mentioned questions were integrated into a final interview schedule.

Administration of the semi-structured interview comprised an introductory briefing, facilitating the completion of the consent form, proceeding with the interview questions and probes and concluding the interview. Henning *et al*. (2004) and Kelly (2006) advise that the interview should start off with setting the scene for the interview. The introductory briefing included thanking the participants for their willingness to participate in the research study, explaining the purpose of the research study and indicating how long the interview would take. After this the researcher facilitated the signing of the consent form, which included all the relevant ethical considerations and concerns as explicated later in this chapter (see 1.5.4.9). The researcher then proceeded with asking the interview questions. Subjects were also probed for clarifications and expansions (Creswell, 2003; Henning *et al*., 2004; Maykut & Morehouse, 1994). The researcher used the following probes during the interviews:

- "Can you tell me more about that?"
- "Can you give me an example of that?"
- "Uhm", "uh-huh" and "ok".

Once all the interview questions were posed and the researcher felt that each of the responses were clarified or expanded upon, the researcher rounded off the interview by asking if the participants had any questions. In accordance with what Henning *et al*. (2004) suggest, the interview was concluded by summing it up and thanking the participants for their time and input.

1.5.4.5 Recording of data

Recording of data is a vital part of the qualitative research process (Cresswell, 2003; Patton, 1990). However, subjects need to feel comfortable with whatever mode of recording is used (Cresswell, 2003; Henning *et al*., 2004). A digital voice-recorder was used to record the interviews. This enabled the researcher to keep a full record of the interviews without having to be distracted by detailed note keeping (Kelly, 2006). Although recording the interviews had this advantage, Cresswell (2003) and Henning *et al*. (2004) warn that machines are prone to mechanical failure when one least expects it. To reduce the risk of losing data because of mechanical failure, the researcher kept a second pair of batteries for the digital voice-recorder

on stand-by, tested the digital voice-recorder before commencing each interview and kept checking that it was still operating throughout the interview.

During the interviews, process notes were made to capture unspoken detail such as sighs, pauses, laughs, facial expressions, gestures, and so forth, which could add to the analysis of the data (Creswell, 2003; Ely, 1991; Kelly, 2006).

The interviews were transcribed, which facilitated the process of referring back and forth to different parts of an interview when it is on paper (Kelly, 2006; Maykut & Morehouse, 1994; Parker, 2005). In this regard, Parker's (2005) recommendations about what should be marked in transcriptions, for example, the names of the speakers, moments of hesitation, ringing cell phones, and so on, were used. Process notes were also integrated into the transcribed interviews.

1.5.4.6 Data analyses

Leedy and Ormrod (2001) state that there is no single right way to analyse case study data. The reason for this is that each case study is unique (Leedy & Ormrod, 2001). However, the description of the data analysis process as well as the report of the findings needs to form a chain of evidence in order to evaluate the eventual conclusions drawn (Yin, 2003). The researcher endeavoured to provide a detailed description of the analysis process.

"Data analysis consists of examining, categorising, tabulating, testing or otherwise recombining both qualitative and quantitative evidence to address the initial propositions of the study" (Yin, 2003, p. 109). Data analysis is also described as the process of labelling and breaking down raw data and reconstituting them into themes, patterns and concepts (Mouton, 2001). With these definitions in mind the researcher set out to analyse the raw multiple-case study data (comprising of the four interview transcripts) by using the following process:

Firstly, data reduction by means of coding was necessary (Miles & Huberman, 1994; Yin, 2003). The first interview transcript was read carefully and initial ideas that could be used as codes or themes were written down. This was done by keeping the research questions in mind (Yin, 2003). The researcher then proceeded to use open-coding by taking the data apart

(Strauss & Corbin, 1990). Each sentence or part thereof that seemed relevant to a research question was given a name and then regrouped into sub-themes, which in turn was grouped as themes. Axial coding was then use to put the data together in a new way (Strauss & Corbin, 1990). Themes were regrouped and linked into each other in a rational manner. The final coding step was selective coding (Strauss & Corbin, 1990). In this step primary themes were selected and related to other themes. The same process was used to code the other three interview transcripts.

Secondly, within-case data analysis was performed (Eisenhardt, 1989; Yin, 2003). This included identifying and analysing the pattern of data within each case. Eisenhardt (1989) recommends constructing an array or display of the data to become intimately familiar with each case as a stand-alone entity. This allows the unique patterns of each case to emerge before generalisations across cases are made (Eisenhardt, 1989). By keeping the initial conceptual framework (see 2.7) in mind, the researcher drew a mind-map for each of the cases, displaying the themes identified during the coding process. One of the drawbacks of a conceptual framework is that it may limit the inductive approach when exploring a phenomenon (Baxter & Jack, 2008). The researcher attempted to identify and analyse the patterns among the themes. To safeguard against the analysis being driven by the conceptual framework, the researcher discussed her thinking with another researcher. Furthermore, coded data representative of the themes and patterns were tabulated (Voss, Tsikriktsis & Frohlich, 2002).

Thirdly, analysis was continued by searching for cross-case patterns (Eisenhardt, 1989; Yin, 2003). Vos *et al*. (2002) advocate that the systematic search for cross-case patterns is a key step in case study research. It is also essential for enhancing the analytical generalisability of conclusions drawn from cases (Vos *et al*., 2002). Analytical generalisation is a method in which a previously developed theory is used as a template with which to compare the empirical results of the case study (Rowley, 2002). Rowley (2002) states that if two or more cases are shown to support the same theory, replication can be claimed. The method used to search for cross-case patterns comprised of constructing another mind map of the summarised case studies, sequentially selecting identified themes and searching for similarities and differences between the cases (Vos *et al*., 2002).

Lastly, the researcher referred to existing literature that supports or conflicts the constructed themes. In this regard, Vos *et al*. (2002) advocate that research must be built on existing theory and that it is important to ask what is similar and what is different and why. Effective enfolding of literature increases both the quality and the validity of the findings (Vos *et al*., 2002).

Although the above description of the data analysis process is very structured, the analysis of case study data and the data gathering was done in an iterative manner. Yin (2003) explains that while the data are being gathered, they are also being evaluated. Furthermore, with each new set of interview data that was coded and analysed, either new themes emerged or it was decided appropriate to change the name of the theme. Data, themes and patterns were continuously being compared, contrasted and summarised upon which the researcher could draw conclusions. Furthermore, Aaltio and Heilmann (2009) state that the contextuality of case data is an essential foundation for analysis. The researcher attempted to analyse the case data in context.

Stake (1995) states that case studies seldom produce entirely new understandings, but rather modify grand generalisations that may be modified further with additional case studies or other research approaches. Before commencing the analysis process, the researcher prepared herself for the possibility of this outcome.

1.5.4.7 Methods to ensure reliability and validity

Qualitative research often comes under fire for its use of small sample sizes or methods that appear to gather unreliable, invalidated or biased data (Given, 2006). However, these criteria of sound quantitative research are not directly applicable to qualitative research, because the intended goals of the two approaches are markedly different. Lincoln and Guba (1985, in Given, 2006, p. 380) identify credibility, transferability, dependability and confirmability as criteria ("hallmarks of rigor") for satisfactory qualitative research. These criteria and the methods typically employed to ensure that they are met, are explained below.

(a) Credibility

Credibility refers to the extent that the research produces believable findings (Hirschman, 1986; Van der Riet & Durrheim, 2006). To determine the credibility of qualitative research, the researcher needs to determine whether and identify which factors or events might have taken place that could have had an impact on the conclusions that were drawn (Van der Riet & Durrheim, 2006). Key-factors that ensure credibility are the completeness of the data collection, the use of multiple analytical perspectives and member checks to confirm the accuracy of the conclusions drawn (Yin, 2003). Triangulation is a method often used to determine the credibility of the research findings (Smit, 1996). Data-, investigator-, theory-, or methodological triangulation refers to the use of multiple perspectives against which to check one's own position (Van der Riet & Durrheim, 2006). Data triangulation is especially suited for case study research because multiple data sources are usually used (Yin, 2003). "However, triangulation is labour intensive and often not feasible for smaller research projects" (Kelly, 2006, p. 287). Triangulation during data collection was performed by interviewing the various participants on the same research topic. Credibility of the interview data and the research findings was also achieved through member checking and theoretical triangulation.

(b) Transferability

Transferability of findings can only be determined by the extent to which the specifics of the research context are described (Hirschman, 1986; Van der Riet & Durrheim, 2006). This is especially important for case study research that aims to test a theory based on a pilot study (Yin, 2003). However, the transferability of a finding can thus not be assessed prior to the construction of the findings that are based on case study data (Hirschman, 1986). Yin (2003) suggests that to provide a context for evaluating the transferability of the findings, the researcher should use theoretical or purposive sampling and develop a thick description of the data that can be reviewed by others. In this dissertation of limited scope, the researcher used purposive sampling and endeavoured to provide a thick description of the research context and some of the case study data.

(c) Dependability

Constructivist researchers, unlike positivists, do not assume that they are investigating a stable and unchanging reality and therefore do not expect to find similar results when repeating a study (Crabtree & Miller, 1999; Van der Riet & Durrheim, 2006). Instead of the reliability of results, dependability, which refers to the degree to which the reader can be convinced that the research findings did in fact occur as the researcher reports them, becomes the relevant criterion (Crabtree & Miller, 1999; Van der Riet & Durrheim, 2006). Guba (1981) recommends using overlapping methods of data collection and/or stepwise replication to enhance the dependability of data. Furthermore, Baxter and Jack (2008) state that the dependability of the case study data can be promoted by having multiple researchers independently code a set of data and then meet together to come to consensus on the emerging codes. The researcher used a stepwise replication of the data collection method. Although the researcher liaised with the research supervisors and a qualitative expert, the researcher was primarily responsible for the coding and analysis of the multiple-case study data.

(d) Confirmability

Confirmability refers to the extent to which the researcher's analysis of the data is supported by the data in order to represent a set of logical and coherent conclusions (Hirschman, 1986). To determine the confirmability of a researcher's analysis of the data, experts in the relevant field are called on to judge the conclusions drawn (Hirschman, 1986). Although the researcher liaised with the research supervisors and a subject matter expert who critically considered the conclusions drawn, the drawing of conclusions from the findings was primarily the task of the researcher due to the constraints of the master's dissertation.

1.5.4.8 Reporting of findings

Although "... there exists no one correct way to report the case study data" (Baxter & Jack, 2008, p. 555), effective analysis of the results will assist in providing an appropriate structure (Rowley, 2002). Yin (2003) recommends that when multiple cases are used, a typical reporting format is to provide a detailed description of each case and then present the themes within the case followed by cross-case themes. In the final interpretative phase, the researcher reports the lessons learned from the analysis (Yin, 2003).

To report the research findings, the researcher provided the within-case themes and the cross-case themes identified. Various researchers articulate the usefulness of raw data, in quotations (Aaltio & Heilmann, 2009; Cordon & Sainsbury, 2005; Patton, 1990). Because the rich research data from case studies gave opportunities to quote the interviewees and brought forward their viewpoints (Aaltio & Heilmann, 2009), direct quotations representative of the identified themes were used to support the reported findings.

The researcher also illustrated the final conceptual framework that comprises of initial and newly added constructs as well as the relationships that seem to exist among them. Furthermore, the findings are also reported in the form of comments on the derived cross-case themes as well as a discussion. Since it is important to share research results with others (Effendi & Hamber, 2006), the findings of the research are reported in a research article in chapter 3.

1.5.4.9 Ethical considerations

The goal of ethics in research is to ensure that no one is harmed as a result of the research activities (Bak, 2004; Wassenaar, 2006). The *Ethical code of professional conduct* (HPCSA, 2002) include ethical guidelines for researchers such as obtaining informed consent from participants for participating in and the recording of research activities as well as maintaining the confidentiality of participants' identities. Wassenaar (2006) also urges researchers to protect the identity of participants or participating organisations and reminds researchers to treat participants with the utmost respect.

In the empirical research study, it was anticipated that participants might feel concerned about the disclosure of their own or the organisation's name, which they represented. However, they were assured of the total anonymity and confidentiality of the information. Furthermore, participants agreed in writing to participate in the study and for the researcher to digitally record the interview and use direct quotations. All participants were treated with ongoing respect throughout the interviews.

1.6 CHAPTER LAYOUT

The chapters are presented as follows:

Chapter 2: A literature review of psychological assessment in the forensic context

The purpose of this chapter was to conduct a literature review to describe the historical development of forensic psychology, what psychological instruments are and their use in the forensic context as well as to describe the forensic context in which industrial psychologists operate. This enabled the researcher to construct an initial conceptual framework for the empirical research study.

Chapter 3: Research article – "Unravelling the various purposes for which industrial psychologists use psychological instruments in loss of income claims"

The purpose of this chapter is to describe the empirical research study and its findings in the form of a research article. The chapter starts off by highlighting the lack of research on the research topic and the subsequent aims of the empirical research. It also explains the research setting, the sample used, the method used to gather data, and the data analysis and research findings.

Chapter 4: Conclusions, limitations and recommendations

The research findings are integrated and conclusions drawn in this final chapter. The limitations of the study are explained and recommendations made for possible future research and practical applications.

1.7 CHAPTER SUMMARY

This chapter 1 provided the background on and rational for this research study. A problem statement was generated and the aims of both the literature review and empirical study formulated. The paradigm perspective was clarified and the research design described in

terms of the type of research, the unit of analysis, the research approach and the research method. The chapter ended with the chapter layout.

The next chapter will review the literature on the historical development of forensic psychology, psychological instruments and how they are used in the forensic context as well as the forensic context in which industrial psychologists operate.

CHAPTER 2: A LITERATURE REVIEW OF PSYCHOLOGICAL ASSESSMENT IN THE FORENSIC CONTEXT

The use of psychological instruments seems to be a widely accepted practice within the 21st century forensic context (Archer *et al*., 2006; Camara *et al*., 2000; Lally, 2003; Naylor *et al*., 2009). A variety of psychological instruments are used to address various types of civil litigation issues and criminal cases (Naylor *et al.*, 2009). However, a thorough understanding of the historical development of forensic psychology is needed to appreciate the use of psychological instruments in different legal disputes.

The first aim of this literature review is therefore to describe the historical development of forensic psychology. The second aim is to describe what psychological instruments are and how they are used in general and in the forensic context. In this section, it will become clear that psychological instruments are frequently used for purposes beyond the original purposes for which they were developed. As part of the preparation for conducting the empirical study, the third aim of this literature review is to describe the forensic context in which industrial psychologists operate.

2.1 THE HISTORICAL DEVELOPMENT OF FORENSIC PSYCHOLOGY

Various definitions of forensic psychology exist (Bartol & Bartol, 2004; Brigham, 1999; Fulero & Wrightsman, 2009; Weiner & Hess, 2006). An earlier definition of forensic psychology is provided by Brigham (1999). “Forensic psychology involves the interaction of psychology and the legal process ...” (Brigham, 1999, p. 274). Bartol and Bartol (2004, p. 8) define forensic psychology more elaborately as “... both (a) the research endeavour that examines aspects of human behaviour directly related to the legal process (e.g. eyewitness memory and testimony, jury decision making, or criminal behaviour) and (b) the professional practice of psychology with or in consultation with a legal system that embraces both criminal and civil law and the numerous areas where they interact”. For the forensic psychologists, this includes activities such as giving courtroom testimony, performing child custody evaluations, screening law enforcement candidates, providing clinical services to offenders and staff in correctional facilities and designing intervention and prevention programmes for youthful offenders (Bartol & Bartol, 2004). Forensic psychology is also defined as the application of

psychological research, theory and practice to the answering of legal questions (Fulero & Wrightsman, 2009). However, the various definitions of and activities associated with forensic psychology do not really explain how forensic psychology originated. Without such an understanding it is difficult to appreciate its current applications and to predict its future direction.

It seems that the interaction between psychology and law was triggered by assassinations on political figures. In Great Britain, James Hadfield, who had suffered a head wound while fighting the French six years earlier, attempted to assassinate King George III (Brigham, 1999). Hadfield's defence attorney relied on and succeeded in using the insanity defence arguing that "... one did not have to be a raging 'wild beast', totally out of contact with reality to be considered insane" (Brigham, 1999, p. 274). Later, in 1843, Daniel McNaughten attempted to assassinate British Prime Minister Robert Peel mistakenly shooting the Prime Minister's secretary (Brigham, 1999; Gregory, 2007). Again the insanity defence was used and McNaughten was found not guilty by reason of insanity (Brigham, 1999; Gregory, 2007). Not amused by the outcome of these assassination trials, Queen Victoria, who had been shot by an assassin three years earlier, collaborated in discussions on the matter with the House of Lords (Brigham, 1999; Gregory, 2007). The House of Lords established the McNaughten Rule, which specifies that to establish a defence on the ground of insanity it must be clearly proved that the alleged offender, at the time of committing the act, did not know what he or she was doing or if he or she did, did not know that the nature of the act was wrongful (Brigham, 1999; Gregory, 2007). Although this was the first rule that contributed to the further development of forensic psychology, it would not be the last.

Many researchers' interest in the applicability of psychology in law also sparked the development of forensic psychology. Their interest urged them to conduct experiments and replicate each other's experiments. Bartol and Bartol (2004) describe that modern forensic psychology began with empirical research on the psychology of testimony. In 1893, James McKeen Cattell conducted the first study on the psychology of testimony at Columbia Univeristy (Bartol & Bartol, 2004; Cattell, 1895). Although it was reasonably well established that courtroom eyewitness testimony was unreliable and incomplete at the time of Cattell's study, the specific conditions under which testimony was inaccurate were not known (Bartol & Bartol, 2004). In the study, Cattell posed four questions to a group of 56 students, questions

that might naturally be asked in a court of justice (Bartol & Bartol, 2004; Cattell, 1895). For example, “In which direction do the seeds of an apple point?” (Cattell, 1895, p. 761). The students were asked to consider their answers, write down their responses and indicate their degree of confidence in each answer (Bartol & Bartol, 2004; Cattell, 1895). Cattell was surprised at both the degree of inaccuracy of the students’ responses and the wide range of individual differences in the levels of confidence expressed by the students (Bartol & Bartol, 2004; Cattell, 1895). Although Cattell’s study was informal, it sparked the interest of other researchers in the psychology of testimony.

Cattell’s study was replicated by other US psychologists who found similar results. However, psychologists in Europe seemed more intrigued by the idea of applying psychology to the legal system (Bartol & Bartol, 2004; Weiner & Hess, 2006). In 1900, Alfred Binet replicated Catell’s study in France and also summarised relevant experiments on the psychology of testimony that were being conducted in Europe (Weiner & Hess, 2006). However, it would be Louis William Stern’s fascination with the work of Cattell and Binet that would inspire him to conduct related experiments, which would turn out to be most significant for the historical development of forensic psychology (Fulero & Wrightsman, 2009; Weiner & Hess, 2006). In 1901, Stern collaborated with a criminologist F.V. Liszt and conducted a so-called reality experiment in a law class (Weiner & Hess, 2006). In the experiment, a bogus quarrel over a scientific controversy between two students was staged up to a point where one of them drew a revolver (Stern, 1939; Weiner & Hess, 2006). The professor intervened at that stage and asked for written and oral reports from the class about aspects of the dispute (Stern, 1939). Although the witnesses were law students who should have known the pitfalls of testifying, none of them could give a faultless report (Stern, 1939). Furthermore, the researchers found that inaccuracies increased during the second half of the scenario, when excitement and tension were at their peak (Stern, 1939; Weiner & Hess, 2006). In this regard, the researchers concluded that emotions tend to reduce the accuracy of recall (Stern, 1939). Throughout the years 1906 to 1910, Stern stayed actively involved in the research of the psychology of testimony and also helped to establish the first journal of the psychology of testimony (Weiner & Hess, 2006). According to Weiner & Hess (2006), the following are some of the primary conclusions of Stern’s research:

- Subjective sincerity does not guarantee objective truthfulness.

- Leading and suggestive questions contaminate the accuracy of eyewitness accounts of critical events.

- There are significant differences between adult and child witnesses.

- Line-ups are of limited value when the members are not matched for age and physical appearance.

- Interceding events between an initial event and its recall can have drastic effects on memory.

All these experiments, even those that were replicated, contributed to the development of forensic psychology. More specifically, knowledge of the accuracy of eyewitness testimony was increased, whilst the first journal of the psychology of testimony undoubtedly inspired the interest of other researchers.

Another European psychologist, who believed that psychological knowledge could be applied to law, was Hugo Munsterberg (Bartol & Bartol, 2004; Brigham, 1999; Fulero & Wrightsman, 2009). Munsterberg, a German psychologist, arrived in the USA in 1892 to direct the psychology laboratory at Harvard University (Brigham, 1999; Fulero & Wrightsman, 2009; Kargon, 1986). Munsterberg spent 24 years trying to persuade the public that psychology could be applied to education, industry, advertising, music, art and, of course, law (Fulero & Wrightsman, 2009). In 1908, Munsterberg published a book entitled, *On the witness stand: Essays on psychology and crime*, in which he argued that the time was ripe to apply psychology to the practical needs of the legal system (Bartol & Bartol, 2004; Fulero & Wrightsman, 2009). However, Fulero and Wrightsman (2009) reported that Munsterberg's claims were often exaggerated and his proposals were rarely empirically based. Despite this, Munsterberg succeeded in pushing his reluctant US colleagues into the practical arena (Fulero & Wrightsman, 2009; Kargon, 1986). Munsterberg also became known as the father of applied psychology (Fulero & Wrightsman, 2009; Kargon, 1986).While some argued that Hugo Munsterberg's interest drove him to exaggerate the applicability of psychology to other

fields, the researcher believes that it was exactly that kind of over enthusiasm that was needed to develop forensic psychology. If Munsterberg's ideas were not bold, it probably would not have elicited so much critique which inspired debates amongst other researchers and professionals and therefore the further development of forensic psychology.

With the start of World War I, the application of psychology to law was put on hold for a while (Bartol & Bartol, 2004). However, it is evident that the war provided other opportunities for the further development of psychological assessment as a field of psychology that would subsequently benefit the new emerging practice of forensic psychology. During World War I, the newest application in the field of psychological assessment was the development of group tests (Gregory, 2007). However, it was only in 1917 when the USA joined the War that the pace of group test development started to accelerate (Gregory, 2007). Robert Yerkes, a psychology professor from Harvard University, convinced the US government to apply intelligence tests on all of its 1.75 million recruits (Gregory, 2007). The aim of the testing was to eliminate the mentally incompetent, to classify men according to their mental ability and to assist in the placement of competent men in suitable and responsible positions (Gregory, 2007; Murphy & Davidshofer, 2001). The two group tests that were developed for these purposes were the *Army Alpha* and the *Army Beta* (Gregory, 2007; Murphy & Davidshofer, 2001). Gregory (2007, p. 67) comments as follows: "The format and content of these tests inspired developments in group and individual testing for decades to come" and the development of these tests provided an opportunity for test construction to develop from "... an art to a science in a few short years".

Although the development of forensic psychology experienced a remission between the two world wars, psychologists interested in applying psychological knowledge in the legal arena, continued their research. In 1917, William Marston, a former student of Hugo Munsterberg, discovered a significant positive correlation between systolic blood pressure and lying, which became the basis of the modern polygraph (Bartol & Bartol, 2004). According to Bartol and Bartol (2004, p. 10 - 11) Marston also conducted research on the jury system in which he found that:

- "... written evidence was superior to oral evidence; ..."

- "... free narration, while less complete, was more accurate than cross examination or direct questioning; ..."

- "... a witness's caution in answering was a good indication of accuracy; ..."

- "... female jurors considered evidence more carefully than male jurors"

The growing body of knowledge regarding psychology and its applicability in law eventually reached a point where books on the topic were published. Throughout the late 1920s and 1930s, psychologists and lawyers produced many books on legal psychology (Bartol & Bartol, 2004). Besides psychologists being interested in applying their field-related knowledge in the legal context, many lawyers also seemed interested in finding out how psychology could contribute to their profession.

In the same timeframe, another dispute emerged which compelled the need to implement more rules and standards with regard to the application of forensic psychology. The use of psychological instrument data in a court of law was becoming an issue of dispute (Bartol & Bartol, 2004; Gregory, 2007; Weiner & Hess, 2006). In 1921, a US psychologist's testimony that was based on psychological instrument data was rejected, because the instrument that was used had not yet been established as reliable and valid (Bartol & Bartol, 2004). Again in 1923, the counsel for a murder defendant attempted to introduce the results of a type of lie-detector instrument (Gregory, 2007). The murderer's lawyer offered an expert witness to testify to the results of the instrument, arguing that if there was no change in his client's systolic blood pressure during the interrogation about the crime, it would prove his client's innocence (Gregory, 2007). However, the Court of Appeals of the District of Columbia rejected this, ruling that the method used had not yet gained general acceptance in the field (Frye v United States, 1923). This became known as the Frye v. United States (1923) standard, which primarily emphasises that techniques or instruments used as the basis for testimony should be well established and generally accepted in a given scientific field (Archer *et al.*, 2006; Harris, 2000; Loftus, 1991). The implementation of these standards is another example of how the development of forensic psychology was influenced by society's need for

implementing rules to overcome a certain dispute. Around the late 1940s, the use of psychological instruments in a court of law gained more prominence. Wigmore was regarded as the foremost authority on rules of evidence (Bartol & Bartol, 2004; Weiner & Hess, 2006). According to Bartol and Bartol (2004, p. 10), Wigmore "... paved the way for the use of test data in the courtroom, noting that the psychometrist introducing test evidence would stand on the same footing as the expert witness to insanity, as long as the tests were recognised as valid and feasible by the general scientific community".

Later on, legal disputes encouraged more and different rules and standards for applying psychology to law. As the courts of the USA were confronted with increasingly more expert-related testimonials, new guidelines for determining the admissibility of expert testimony were generated (Gregory, 2007). A case that influenced the development of some of those guidelines was the Daubert v. Merrell Dow Pharmaceuticals case (1993). Regarding the use of psychological instrument data in a court of law, the Daubert standard states that the scientific theory and technique must be testable, must have been subjected to peer review and publication, must have an established error rate and must be generally accepted in the relevant scientific field (Archer *et al*., 2006; Gregory, 2007; Louw & O'Brien, 2007). The Daubert standard is still used in the USA (Archer *et al*., 2006).

As in the international realm, the forensic field in South Africa developed in an extremely pragmatic fashion without a proper theoretical base and ethical guidelines (Louw & Allan, 1998; Louw & O'Brien, 2007). Up to the early 1970s, South African psychologists only became involved in forensic matters when instructed by a psychiatrist to do psychometry or when they were asked to be a member of the forensic team at one of the psychiatric hospitals (Louw & Allan, 1998). However, what was different from the development of forensic psychology in South Africa was the level of interest psychologists portrayed to find out more about the topic even though they were already engaged in forensic work. In the mid-1980s it was found that only 21.5% of the clinical psychologists participants surveyed had attended a formal course in forensic psychology and that only 23.95% felt equipped to conduct forensic evaluations (Lamprecht, 1986). More than ten years later, Louw and Allan (1998) report that only 8% of the forensic psychologist participants surveyed had attended a formal course in forensic psychology. What is even more disturbing is that 46.7% of the participants indicated that they do not consider themselves to be experts in a field other than forensic psychology

(Louw & Allan, 1998). South African law clearly states that witnesses may only testify in respect of facts they perceive through one or more of their sensory organs (Schmidt, 1989; Van der Berg & Van der Merwe, 2002). However, a person with specialist knowledge and skill may give an opinion to assist the court (Schmidt, 1989; Van der Berg & Van der Merwe, 2002). Hence the first rule-of-opinion evidence by experts is that the witness must be a specialist in a particular field (Louw & Allan, 1998; Schmidt, 1989; Van der Berg & Van der Merwe, 2002). Being a specialist or an expert means having skills, experience and training in a particular discipline (Meintjies-Van der Walt, 2003). If 46.7% of the participants surveyed do not consider themselves to be experts in a particular field other than forensic psychology, these psychologists should be made aware of the diminished value of their testimony. Taking these findings into consideration, it seems that forensic psychologists in South Africa were not eager to enhance their knowledge of forensic psychology. This may imply that they did not realise the importance of the further development of the field by means of engaging in activities such as research experiments, debates amongst each other or even just conversing with the legal profession.

From the above mentioned literature, the researcher is of the opinion that forensic psychology partly developed due to society's need for rules that could be used to deal with different kinds of conflicts or disputes. The nature of the law, provided rules and standards that could be fairly applied. For example, all psychological instruments were required to fulfil the same quality standards in order to be accepted by the legal system. Furthermore, the fairness of the rules and standards implemented, ensured the just treatment of individuals who were indeed found to be insane.

The literature also seems to indicate that the development of forensic psychology was mostly a factor of researchers' (referring to psychologists or other professionals) interest in the applicability of psychology in law. Whilst researchers abroad eagerly expressed their interests by performing experiments, starting journals, writing books and debating on the subject matter, South African psychologists portrayed little interest if any at all. The apparent lack of interest in forensic psychology on behalf of South African psychologists, allows the researcher to believe that the development of forensic psychology in this country, has been neglected.

Regardless of how poorly the field of forensic psychology in South Africa developed, there is currently still room for the expert psychologist in the South African legal system (Van der Berg & Van der Merwe, 2002; Vorster, 2009). As an expert, the psychologist needs to assist the court in forming opinions and drawing valid conclusions on the basis of a given set of facts (Vorster, 2009). According to Vorster (2009, p. 27), the "... psychologist is expected to draw conclusions from clinical evaluations, any relevant data, reports by other experts and hypothetical situations and thereby render an opinion to assist the court". Applying psychological instruments is often a valuable source of information that can lend support to conclusions based on other information resources (Gregory, 2007; Naylor *et al*., 2009). To assist the development of forensic psychology in South Africa in some small part, the present study set out to explore the purposes for which psychological instruments are used in the forensic context. However, this required a literature review on what psychological instruments are, their present uses, advantages and more specifically, the documented applications of psychological instruments in the South African forensic context.

2.2 PSYCHOLOGICAL INSTRUMENTS AND THEIR USE IN THE FORENSIC CONTEXT

A psychological instrument is described as an assessment instrument with three defining characteristics, namely that it is a sample of behaviour that is obtained under standardised conditions and scored or interpreted by using either established rules for obtaining numerical information from the behaviour sample or methods for interpreting the behaviour sample (Gregory, 2007; Murphy & Davidshofer, 2001). This implies that a psychological instrument is designed to measure or interpret a specific attribute under certain assessment conditions (specific to the instrument) and that the same objective scoring rules (also specific to the instrument) or interpretation methods are used each time to reach conclusions based on the instrument data. From this definition, it is evident that the aim of administering psychological instruments is to measure or interpret personal attributes in an attempt to describe, understand or predict individual behaviour (Foxcroft & Roodt, 2001). Personal attributes that can be assessed by means of psychological instruments include intelligence, motivation, vocational preferences, personality, anxiety, depression and many others (Foxcroft & Roodt, 2001; Gregory, 2007).

Apart from the above mentioned characteristics, psychological instruments have two other very important characteristics that make them applicable to a greater or lesser extent in different situations and contexts. Firstly, psychological instruments differ from one another in terms of the attribute that is measured or interpreted and the psychological instrument's structure, length and administration method (Foxcroft & Roodt, 2001). Types of instruments include tests (in which test items have explicit correct answers), questionnaires and inventories (for which there are no correct or incorrect answers) as well as techniques that are mostly used to project personality (Gregory, 2007; Murphy & Davidshofer, 2001). The one thing that all of these types do have in common is the fact that they can never provide a basis for making a completely accurate decision about an individual (Murphy & Davidshofer, 2001). Psychological instruments, like any other type of information resource, have limitations and flaws and should be used properly to avoid unnecessary mistakes (Bartol & Bartol, 2004). However, Murphy and Davidshofer (2001, p. 2) conclude that psychological instruments "... represent the best, fairest, and most accurate technology available for making many important decisions about individuals". Based on these findings, it can be inferred that psychological instruments should be used in conjunction with other sources of information to make decisions about people's lives.

In the second instance, any psychological instrument must meet two crucial technical standard requirements if it is to be used for any type of decision making. The first standard is reliability. The reliability of a psychological instrument refers to the consistency with which it assesses a given attribute (Foxcroft & Roodt, 2001; Papalia & Olds, 1985). Expert testimony based on psychological instrument results is frequently examined on relevance and reliability (Baute, 2001). Reliability is expressed in terms of a reliability coefficient, which is nothing more than a correlation coefficient (Foxcroft & Roodt, 2001). Heilbrun (1992) advises psychologists not to use instruments with a reliability coefficient of less than 0.80. The second technical standard that a psychological instrument must meet is validity. The validity of an instrument concerns what the instrument is supposed to assess and how well it does so (Foxcroft & Roodt, 2001; Papalia & Olds, 1985). Because a psychological instrument is developed to assess a specific ability or attribute, it has a high or low validity for a specific purpose (Foxcroft & Roodt, 2001). Although different types of validity exist, a psychological instrument's validity can also be expressed in terms of a validity coefficient (Foxcroft & Roodt, 2001). Based on the emphasis that is placed on the importance of these two technical

requirements, psychologists should consider the reliability and validity of any psychological instrument before providing a professional opinion regarding any decision concerning some aspect of an individual's life.

Various contexts exist in which psychologists use psychological instruments to make decisions or form professional opinions regarding individuals' lives. Psychological instruments are more commonly known to be used in the clinical context to diagnose psychopathology such as anxiety disorders, personality disorders, mood disorders, depression and stress (Gregory, 2007; Naylor *et al.*, 2009; Nevid, Rathus & Greene, 2006). However, psychological instruments are also used in the work, educational and forensic environment. In the work environment, psychological instruments are used in personnel selection procedures to predict people's future job performance and/or potential (Cascio & Aguinis, 2005; Gregory, 2007). In developmental procedures, these instruments are used to assess managerial potential and training needs (Coetzee & Roythorne-Jacobs, 2007). In the educational context, psychological instruments are used to assess the learning ability and potential of children or students, to assess their maturity and readiness for a certain study level and to identify learning disabilities (Furnham & Fong, 2000). Psychological instruments are also used as part of a proper forensic evaluation process, the purpose of which is the focus area of this study (Ackerman, 1999; Archer *et al*., 2006; Borum & Grisso, 1995; Gregory, 2007; Kaiser, 1986; Lewis, 2009; Naylor *et al*., 2009).

In the forensic context, psychologists are frequently involved in criminal and civil cases (Ackerman, 1999; Borum & Grisso, 1995; Heilbrun, 1992; Lowenstein, 2002; Mullen & Edens, 2008; Packer, 2008; Vorster, 2009). Criminal cases arise out of illegal acts that violate the community's interests and safety (Geldenhuys *et al.*, 2009; Melton, Petrila, Poythress & Slobogin, 1987). It includes juvenile sentencing, competency to stand trial and to be sentenced, insanity defence and diminished capacity, to name but a few (Packer, 2008). In these cases the state acts as prosecutor in the interests of the community in prosecuting persons suspected of having committed crimes (Geldenhuys *et al*., 2009; Melton *et al*., 1987). When the sanity of the accused is questioned, a forensic psychologist (usually a clinical psychologist or psychiatrist) is appointed to assess the accused's criminal capacity and assist the court in deciding on the most appropriate sentence (Borum & Grisso, 1995; Vorster, Cramer & Burke, 2009). Civil cases occur when the subjective rights of persons are breached

(Geldenhuys *et al.*, 2009). Heilbrun (1992) cites a few examples of civil cases that include competency to enter into contractual relationships, guardianship, disability determination and compensation for injuries. In such cases, the aggrieved party or individual, and not the state, institutes a civil case against the other party (Geldenhuys *et al*., 2009; Melton *et al*., 1987). In civil cases, the forensic psychologist assists in determining the degree of damage sustained in third-party cases, helps the court decide on how to award custody of children in divorce proceedings and also assists in matters pertaining to the curatorship of a person's affairs (Vorster, 2009). Regardless of the type of legal case the psychologist is involved in, the use of psychological instruments in the forensic assessment process, seems to have a number of advantages.

2.3 ADVANTAGES OF USING PSYCHOLOGICAL INSTRUMENTS IN THE FORENSIC CONTEXT

The focus and strength of a forensic psychologist's testimony often lies in the interpretation of psychological instruments (Gregory, 2007; Hayes, n.d.; Lownstein, 2002). The following advantages of using psychological instruments in the forensic context support this view:

2.3.1 The use of a psychological instrument offers some simplicity in the assessment of behaviour

Psychological instruments can reduce the complexity of human behaviour to a manageable set of variants so that current behaviour can be described and future behaviour predicted (Naylor *et al*., 2009). A psychologist is often required to give testimony on a specific aspect of a subject's behaviour such as his or her personality, interests, intellectual capacity and so forth (Naylor *et al*., 2009). Because psychological instruments are designed to assess a specific aspect of behaviour, the psychologist can simply use the instrument that will allow him or her to testify on the specific aspect of the subject's behaviour. The psychologist therefore does not have to assess the subject's whole psyche and all its behavioural complexity.

2.3.2 The use of a psychological instrument can be less labour intensive and less time-consuming

The structured format of psychological instruments makes it easier and quicker to obtain personal information from people who are reluctant to disclose it during one-on-one interviews (Naylor *et al.*, 2009). This means that the psychologist can administer a psychological instrument to sample a specific aspect of the subject's behaviour in a relatively short time frame. The psychologist therefore does not have to spend long hours trying different approaches to assess a reluctant subject.

2.3.3 The use of a psychological instrument offers consistent information

The information obtained from psychological instruments is often more scientifically consistent than information obtained from an interview (Naylor *et al.*, 2009). Psychological instruments need to be reliable as a standard technical requirement, which means that it must be consistent in its assessment. However, the responses obtained from conducting an interview are largely dependent on the skills of the interviewer as a subject tends to take his or her lead from the interviewer (May, 2001). Therefore, the same interview can elicit different responses when conducted by different interviewers. Offering more scientific consistency, psychological instruments, can strengthen the psychologist's professional opinion.

2.3.4 The use of a psychological instrument provides for a structured and standardised method of assessment

The use of psychological instruments allows for a structured and standardised assessment of an individual's current symptoms (Witt & Weitz, 2007). This means that the psychologist follows an organised and prescribed method to compare a subject's responses with clinical and non-clinical samples. This is done in order to determine whether the subject experiences significant present levels of anxiety, depression or other psychological symptoms. The structured and standardised method used, enables the psychologist to provide a detailed description of the diagnostic process followed, which strengthens the psychologist's testimony.

2.3.5 The use of a psychological instrument can help to determine a subject's truthfulness

Objective psychological instruments, in conjunction with collateral information, can help to determine whether a person is malingering or exaggerating his or her psychological symptoms (Witt & Weitz, 2007). Some psychological instruments have validity scales that indicate the attitude with which a subject responded to the instrument (Witt & Weitz, 2007). The subject's responses are then compared to various clinical samples, which may or may not indicate that the subject exaggerated his or her psychological symptoms. The psychologist is then able to use this information in conjunction with collateral information such as family interview data to form an opinion on the truthfulness that the subject portrayed in the forensic assessment process. This information can then be used to strengthen the psychologist's professional opinion on the matter at hand.

The above mentioned advantages indicate that by choosing to use psychological instruments, the forensic psychologist ensures that his or her forensic assessment process is partly made more simple, scientific consistent, structured, standardised, less labour intensive and less time-consuming. It also evident that the use of psychological instruments helps the forensic psychologist to build a strong testimony.

Although the advantages of using psychological instruments in the forensic context seem abundant, it should be kept in mind that psychological instruments do differ from one another. That which one psychological instrument offers is not necessarily provided by another. In order for the forensic psychologist to make use of different psychological instruments' advantages, he or she needs to have a thorough knowledge of the field of psychological assessment, which includes knowing what instruments are used and the purposes for which they are used (Gregory, 2007; Packer, 2008; Shapiro, 1984).

2.4 TYPES OF PSYCHOLOGICAL INSTRUMENTS USED IN THE FORENSIC CONTEXT

As previously mentioned, different types of psychological instruments are designed to assess different behavioural constructs or attributes and are therefore more or less suitable to be used

for different purposes. Lowenstein (2002) found that five kinds of standardised assessments are frequently used by forensic psychologists, namely: (1) intelligence or ability tests; (2) tests of academic attainment; (3) objective personality inventories; (4) projective personality techniques and (5) specialised psychological instruments.

Each of these is briefly discussed with regard to the objective of the psychological instrument and the purpose it serves in the forensic context. Because numerous surveys have been conducted on instrument usage in the forensic context of the USA (Archer *et al.*, 2006; Borum & Grisso, 1995; Camara *et al*., 2000; Luben, Larsen & Matarazzo, 1984; Piotrowski, 2007), the specific psychological instruments found to be the most frequently used are also mentioned.

2.4.1 Intelligence or ability tests

Ability tests assess a person's general mental ability, referred to as intelligence, as well as tests that tap specific abilities such as verbal ability or spatial visualisation (Murphy & Davidshofer, 2001). Intelligence tests are used to determine an individual's level of general ability in comparison with his or her age group, to help diagnose mental retardation or to gain an understanding of the person's unique intellectual functioning (Camara *et al*., 2000; Foxcroft & Roodt, 2001; Nevid *et al*., 2006). While some ability tests are used in the educational context to identify children with learning disabilities, others are used during selection and placement procedures in industry to determine whether a person has certain abilities necessary for succeeding in a specific occupation (Coetzee & Roythorne-Jacobs, 2007; Foxcroft & Roodt, 2001).

In the forensic context, intelligence tests are often used in child custody evaluations, competence to stand trial cases as well as criminal responsibility cases (Ackerman, 1999; Borum & Grisso, 1995; Lowenstein, 2002). In order to determine whether a parent suing for custody of a child will be able to adequately support the child academically, intelligence tests are administered to reveal any significant discrepancies between the parent's ability and that of the child (Ackerman, 1999). In competence to stand trial cases and criminal responsibility cases, intelligence test are administered to the alleged offender to determine if the person can distinguish between right and wrong and if he or she has the ability to act in accordance with

that knowledge (Vorster *et al*., 2009). If the person is found to be mentally incompetent at the time of the alleged offence, it implies that he or she does not have the capacity to provide a valid testimony in a court of law and therefore cannot be subjected to trial on criminal charges (Borum & Grisso, 1995; Lowenstein, 2002; Melton *et al*., 1987). From these examples the researcher infers that intelligence tests are used in situations where the intellectual capacity of a subject is questioned.

Archer *et al*. (2006) found that Wechsler intelligence scales such as the *Wechsler Adult Intelligence Scale III*, the *Wechsler Adult Intelligence Scale – Revised* and the *Wechsler Memory Scale* were the most widely used intelligence tests in the forensic context.

2.4.2 Tests of academic attainment

Tests of academic attainment, also referred to as achievement measures, measure the effects of relatively standardised instructional input (Camara *et al*., 2000; Foxcroft & Roodt, 2001; Lowenstein, 2002). The most common achievement measures are classroom tests developed by teachers to assess their students' progress throughout the school year (Foxcroft & Roodt, 2001; Gregory, 2007). For example, a teacher gives her students a multiplication test after having taught them their timetables.

In the forensic context, witnesses often claim to be experts in a particular area of expertise when testifying in a court of law (Lowenstein, 2002). Before their alleged expert evidence is accepted, Lowenstein (2002) recommends assessing their capacity to read, write and achieve academic qualifications. Tests results will then either support or diminish the weight of their testimony (Lowenstein, 2002). The *Wide Range Achievement Test – 3* follows on the Wechsler intelligence scales in terms of the most popular cognitive instruments used in the forensic context (Archer *et al*., 2006).

Although this use of an achievement measure appears to be a positive recommendation, it is not standard practice. Judges generally rely on qualifications and experience to verify expert status, because the administration of achievement measures to a forensic team (made up of various professionals) is much too time-consuming and expensive (Roos & Vorster, 2009).

Taking these findings into account, the researcher is of the opinion that while tests of academic attainment are applicable in the forensic context, it is not necessarily practical.

2.4.3 Objective personality inventories

Objective personality inventories are highly structured instruments that assesses the traits, qualities or behaviours that determine a person's individuality (Gregory, 2007; Murphy & Davidshofer, 2001; Nevid *et al*., 2006). These instruments are characterised by a fixed set of statements or questions that are clear and unambiguous (Foxcroft & Roodt, 2001) for example, "Do you like going to the library?" or "On a scale from 1 (meaning that you strongly agree) to 5 (meaning that you strongly disagree), how would you rate the statement that people are generally kind?"

Quantifying aspects of behaviour and temperament that include the capacity for honesty and rational behaviour help to predict a person's future behaviour (Gregory, 2007; Lowenstein, 2002). Objective personality inventories are commonly used to assess clinical disorders, screen for psychopathology, predict person-job-fit and assess career developmental potential based on an individual's personal characteristics (Bryant, 2003; Camara *et al*., 2000; Coetzee & Roythorne-Jacobs, 2007).

In the forensic context, different objective personality inventories are used to assess various personality factors that may influence the outcome of a legal matter. Such factors include psychoticism, stability, motivation to achieve, aggression, social ability and other aspects of behaviour, attitude and personality (Lowenstein, 2002). Archer *et al*.'s (2006) survey shows that the *Minnesota Multiphasic Personality Inventory* was used by more forensic professionals included in their study sample, but that the *Personality Assessment Inventory* was used more frequently. Both these instruments are also used in competency to stand trial cases as well as criminal responsibility cases (Borum & Grisso, 1995).

The *Minnesota Multiphasic Personality Inventory* is used for a wide variety of purposes (Ackerman, 1999; Archer *et al*., 2006; Nevid *et al*., 2006; Peyrot, 1995). Peyrot (1995) researched the interpretative practices of a forensic psychiatry organisation that uses the *Minnesota Multiphasic Personality Inventory*. Peyrot (1995, p. 583) found that the defining

characteristic and the purpose of the use of the instrument was "... its ability to generate a characterisation of a subject's psyche". The *Minnesota Multiphasic Personality Inventory* was also used to identify malingering (Kaiser, 1986). Since substantial monetary benefits can result from personal injury claims, it is imperative to use an objective personality instrument when a client or person is suspected of false or grossly exaggerated physical or psychological symptoms (Kaiser, 1986). Over 90% of psychologists who were involved in child custody evaluations also used the *Minnesota Multiphasic Personality Inventory* (Ackerman, 1999). Although this instrument did not provide a good-parent or bad-parent profile, it did provide information on the family dynamic that helped decision makers make a decision about the custody of children (Ackerman, 1999; Melton *et al*., 1987).

Mullen and Edens (2008) researched the role of the *Personality Assessment Inventory* in civil and criminal trials. It was found that this inventory was mainly used to assist with the assessment of a broad range of psychopathology and that the admissibility of the instrument's results was never an issue in any of the cases reviewed (Mullen & Edens, 2008). In Australia, the *Personality Assessment Inventory* was also recommended as a psychological instrument to assist in detecting the feigning of psychological symptoms (Bryant, 2003).

From these findings it is evident the purposes for which the above mentioned objective personality inventories are used, stretch beyond the original purpose they were developed for.

2.4.4 Projective personality techniques

Projective personality techniques are unstructured and have ambiguous items that encourage examinees to project their personality into the technique tasks using their hidden wishes, motives, conflicts, attitudes and needs when responding to stimuli presented (Bergh, 2003; Murphy & Davidshofer, 2001). For example, a person is given an inkblot or an incomplete sentence and is then required to interpret and respond to it (Gregory, 2007; Nevid *et al*., 2006). The assumption of the projective technique is that the person's private world (in the form of needs, motives, fantasies or conflicts) is revealed by analysing the way he or she interprets the stimuli presented (Gregory, 2007; Murphy & Davidshofer, 2001).

Projective personality techniques like the *Rorschach Psychodiagnostic Inkblots* were mainly developed to understand and study the behaviour of abnormal subjects (Gregory, 2007). However, some projective techniques like the *Thematic Apperception Test* can be used to study an individual with a normal functioning personality (Bergh, 2003; Gregory, 2007). In this regard, the *Thematic Apperception Test* is used to assess a person's needs for achievement, affiliation and dominance (Gregory, 2007).

In the forensic context, projective personality techniques can be used to identify a person's level of adjustment after having experienced a traumatic event or they can be combined with other instruments to obtain a valid picture of an individual's way of thinking (Lowenstein, 2002). However, Kaiser (1986) cautions against its use, because the different interpretation of the projective personality technique by psychologists can be somewhat confusing for judges and juries. Nevertheless, surveys conducted in the USA indicate that the *Rorschach Psychodiagnostic Inkblots*, the *Sentence Completion Test* and the *Thematic Apperception Test* are the most frequently used projective techniques (Archer *et al*., 2006; Luben *et al*., 1984). Furthermore, Ackerman (1999) specifically recommends that the *Rorschach Psychodiagnostic Inkblots* be used for determining whether children charged with crime show symptoms of paranoia, underlying psychopathology or lower levels of reality testing.

Taking these findings into consideration, the researcher infers that whilst the use of a projective technique may be applicable in the forensic context, it may not be so practical to use.

2.4.5 Specialised psychological instruments

Specialised psychological instruments include those that were developed for specific purposes such as assessing suicidal tendencies, clinical depression, violence risk assessment, adult sex offender risk assessment, sanity assessments and the assessment of malingering (Ackerman, 1999; Archer *et al*., 2006; Lowenstein, 2002). From the specific instruments described, the purpose for using an instrument seems to be influenced by the specific legal matter at hand.

Psychological instruments measuring suicidal tendencies and clinical depression are mainly used in clinical settings to confirm an individual's condition (Nevid *et al*., 2006). However,

specific risk factors such as suffering from depression have been found to be related to future violence (Ackerman, 1999). Instruments like the *Beck Depression Inventory – II* and the *Beck Anxiety Inventory* are thus frequently used in the forensic context as part of a violence risk assessment (Archer *et al*., 2006). Furthermore, people who have been diagnosed as mentally ill are in some instances also considered to be prone to violence (Ackerman, 1999). To determine if the state should impose an involuntary commitment proceeding on a mentally ill person, instruments like the *Psychopathy Checklist* and the *Historical Clinical Risk – 20* are frequently used to assess whether the person is a danger to society (Ackerman, 1999; Archer *et al*., 2006).

Adult sex offender risk assessment is done on sexual offenders to predict their future behaviour and if necessary incarcerate them as long as they remain a danger to society (Melton *et al.,* 1987). In this regard, the most frequently used instruments are the *Static – 99* and the *Sexual Violence Risk – 20* (Archer *et al*., 2006).

Some psychological instruments are specifically developed to determine if a person is mentally ill (Nevid *et al*., 2006). The most popular sanity assessment instrument is the *MacArthur Competence Assessment Tool – Criminal Adjudication* (Archer *et al.,* 2006).

As previously mentioned, it is necessary to assess the malingering of those individuals suspected of feigning or exaggerating their physical or psychological symptoms. The most frequently used instruments for this purpose are the *Structured Interview of Reported Symptoms* and the *Test of Memory Malingering* (Archer *et al*., 2006; Lowenstein, 2002).

From the above mentioned literature, the researcher infers that the purposes, for which the above mentioned psychological instruments were developed, and their characteristics make them applicable and practical to a greater or lesser extent in a specific forensic context. In some cases, the purposes for which the instrument are used, even goes beyond the original purpose it was developed for. However, all of the above mentioned survey studies described the specific psychological instruments and the use thereof in countries abroad. Since this is a South African research study, a thorough description of the use of psychological instruments in the forensic context needs to integrate the application of psychological instruments in the South African forensic context.

2.5 APPLICATION OF PSYCHOLOGICAL INSTRUMENTS IN THE SOUTH AFRICAN FORENSIC CONTEXT

In South Africa, less research has been conducted on which instruments are commonly used in the forensic context and their purpose. In an attempt to develop a profile of forensic psychologists in South Africa, Louw and Allan (1998) also identified the types of assessment techniques used in psycho-legal evaluations. These include unstructured and structured interviews, intelligence tests, neuropsychological instruments, personality inventories and questionnaires, projective techniques and hypnosis (Louw & Allan, 1998).

According to Naylor *et al*. (2009), interviews are often the primary tool in the forensic assessment of an individual. The interview allows the client to openly converse and share views and information on the legal matter at hand (Naylor *et al*., 2009). Similar to the situation abroad, South African psychologists use intelligence tests to measure an individual's intellectual potential (Naylor *et al*., 2009). "Intelligence tests are normally used in neuropsychological assessments, criminal cases and in some cases in custody hearings" (Naylor *et al*., 2009, p. 36). Neuropsychological instruments attempt to assess deficits in cognitive functioning caused by brain damage sustained in major accidents (Naylor *et al*., 2009). A neuropsychologist would typically assess a person's ability to think, speak and reason (Naylor *et al*., 2009). In the South African forensic context, objective personality inventories are mainly used to help with clinical diagnosis, the most popular psychological instruments being the *Minnesota Multiphasic Personality Inventory* and the *Sixteen Personality Factor Questionnaire* (Naylor *et al*., 2009). The *Rorschach Inkblot Test* and the *Thematic Apperception Test* are popular projective techniques used in forensic assessments (Naylor *et al*., 2009). However, Naylor *et al*. (2009) caution that information obtained from projective techniques does not provide any independent information such as that which may be derived from standardised tests. The reliability of the projective technique's results largely depends on the skill and experience of the psychologists interpreting it (Naylor *et al.*, 2009). Although Louw and Allan (1998) mention the use of hypnosis in the forensic context, no South African literature relating to its use in the forensic context was found.

Another South African study that touches on the use of psychological instruments in the forensic context is that of Moodie (1992). Moodie (1992) researched the role of the industrial

psychologist in quantifying third-party claims. The case study reviewed instruments measuring intellectual ability that were used to help predict a claimant's qualification level by comparing pre-accident school or work performance with current tested ability (Moodie, 1992). This concurs with Kaiser's (1986) belief that ability testing is necessary because past academic background and history are often insufficient to establish a person's current functioning levels. Interest instruments like the *Kuder Interest Questionnaire* and the *Rothwell Miller Interest Questionnaire* were used to determine if there was any agreement between the plaintiff's pre- and post-accident career interests (Moodie, 1992). Kaiser (1986) contends that interest inventories should be used to assess a person's motivation and to help the psychologist develop a guidance plan to assist an impaired worker move towards an effective vocational rehabilitation process. According to Moodie (1992), projective techniques like the *Thematic Apperception Test* and the *Sentence Completion Test* were used to identify the plaintiff's personal adjustment after an accident.

Although Moodie (1992) succeeds in describing the role of the industrial psychologist in quantifying third-party claims, the research was based on a single case study and therefore does not provide a wealth of information on the psychological instruments used and the purposes for using them in loss of income claims.

What is evident from these international and local studies on psychological instrument usage in the forensic context is that they did not distinguish between the different types of forensic psychologists included in the sample. Some studies only surveyed a combination of clinical psychologists and psychiatrists or neuro-psychologists (Camara *et al*., 2000; Peyrot, 1995), while other studies did not distinguish between the different types of forensic psychologists at all (Archer *et al*., 2006; Borum & Grisso, 1995; Louw & Allan, 1998; Luben *et al*., 1984; Mullen & Edens, 2008). The studies provided only limited information on instrument usage by a specific group of forensic psychologists. In this regard, Piotrowski (2007, p. 95) found that "... there is little consensus in the field of forensic psychology on the key tests to use in practice" and that "... the test user's training, group affiliation, employment setting, and organizational allegiance play a major role in test usage patterns" (Piotrowski, 2007, p. 97). This finding thus argues for research into the patterns of psychological instrument usage among specific types of forensic psychologists, namely clinical psychologists, counselling psychologists, educational psychologists, industrial psychologists and/or neuropsychologists.

Because of industrial psychologists extensive involvement in the legal sector (Adams & Adams Attorneys, 2008), the current research set out to explore the purposes for which they use psychological instruments in loss of income claims. However, this empirical aim demands a description of the forensic context in which industrial psychologists operate.

2.6 THE FORENSIC CONTEXT IN WHICH INDUSTRIAL PSYCHOLOGISTS OPERATE

Industrial psychology, as it is called in South Africa, is an applied field of psychology in the work context (Papalia & Olds, 1985; Theron, 2003). "The aim of industrial psychology is to understand, explain, predict and influence human behaviour and experience in the work place" (Theron, 2003, p. 14). Applied fields of industrial psychology include research methodology, psychological assessment, personnel psychology, organisational psychology, career psychology, ergonomics consumer psychology, employee relations and employee and organisational well-being (Theron, 2003).

An industrial psychologist has extensive knowledge of how to apply psychological principles to the workplace in the interest of improving productivity and making the workplace more fulfilling for workers and employers alike (Papalia & Olds, 1985; Vorster, 2009). This category of professional also has knowledge of employment requirements, practices, legislation, remuneration and opportunities or lack thereof in the job market (Kaiser, 1986; Vorster, 2009). It is this knowledge base that makes the industrial psychologist especially suited to assist those practising in the legal system with job-related legal disputes (Kaiser, 1986; Lewis, 2009).

International industrial psychologists, also known as vocational psychologists or earnings' experts, practising in the forensic context, are mainly approached to help quantify an individual's loss of earning capacity (Kaiser, 1986; Lewis, 2009). Whenever a person's ability to work, to continue and/or to advance in his or her present career is affected or is questionable, there is a need to determine his or her loss of earnings, loss of work capacity, future loss of earnings and/or earning potential (Lewis, 2009; Lowenstein, 2002). Loss of earnings implies the direct loss of income a person sustains because of an occurrence (Lewis,

2009), say taking extensive sick leave to recover from physical injuries. Loss of work capacity refers to a loss of the person's ability to do the work he or she is trained to do (Lewis, 2009), say when a welder loses his right hand. Future loss of earnings refers to the earnings a person could have earned, had it not been for the occurrence (Honey, 1987). Finally, future loss of earning potential refers to the person's loss of potential, motivation and ability to adapt to make a success of his or her future career (Honey, 1987). To prevent confusion between these terms in this dissertation of limited scope, they are combined under the same heading, namely "loss of income". The nature of a loss of income claim implies that the industrial psychologist has to deal with information such as the details surrounding the specific occurrence, the medical history and hospital records of the claimant, work related information such as salary slips, South African Revenue Service documentation, business or individual work performance records, as well as psycho-legal reports containing the professional opinions of other specialists.

In South Africa, forensic industrial psychologists are currently involved in civil cases concerning personal injuries, divorce actions and damages arising from employment relationships (Lewis, 2009).

2.6.1 Personal injury claims

Of the three types of civil cases, most forensic industrial psychologists are involved in personal injury claims (Lewis, 2009). A personal injury claim is one in which a person has sustained some type of ongoing monetary loss and is therefore entitled to compensation, if it can be proven that he or she was not responsible for the injury (Lewis, 2009; Witt & Weitz, 2007). If a fatal injury occurs, it becomes a loss of support claim in which case the departed person's dependants can claim for damages (Lewis, 2009).

There seems to be four different types of personal injury claims. Firstly, the vast majority of the industrial psychologist's work is in the area of motor vehicle accidents (third-party claims) where litigation is either brought against the driver of an insured vehicle or the Road Accident Fund (Lewis, 2009). In most instances, a large part of the work undertaken in motor vehicle accidents relates to litigation against the Road Accident Fund (Lewis, 2009).

According to the Road Accident Fund's annual report (2008), the number of claims registered increased from 170 418 in 2007 to 267 133 in 2008.

Secondly, another area of work in which the industrial psychologist is involved is the growing field of medical negligence (De Vries Shields Chiat Attorneys, n.d.; Lewis, 2009). As people become more aware of their rights with regard to medical malpractice and negligence, private doctors, institutions or state doctors and state-run institutions are sued (Lewis, 2009).

Thirdly, in public liability claims private insurance companies or organisation without insurance cover are sued (Lewis, 2009), for example if the roof of a restaurant collapses and injures a number of people.

Lastly, when a personal injury results from intentional or accidental physical assault, a claim can be lodged against an individual in his or her private capacity or against the state (Lewis, 2009), say a private security firm being sued because a shooting incident resulted in injury to people.

From the nature of the above described claims, one can infer that the industrial psychologist operates in a context which involves interaction with injured, disabled or bereaved claimants, professional people such as medical doctors and even lay people. Organisations involved may include those such as the Road Accident Fund, insurance companies, medical institutions and other private organisations. It can furthermore be inferred that industrial psychologists are possibly confronted with emotions such as anger, frustration and sadness on the part of claimants.

2.6.2 Divorce actions

When people divorce, litigation usually revolves around the wife's earning capacity in terms of the amount she claims from her husband for support (Lewis, 2009). Although recognition is given to the plaintiff (the wife) for the effort she put into raising children, the defendant (the husband) typically wants to make sure that the plaintiff contributes to her own upkeep (Lewis, 2009). In such cases, the industrial psychologist is called on to determine what the earning capacity or earning potential of the wife would be in the future (Kaiser, 1986; Lewis, 2009).

Information such as the projected career path and associated earnings are used to determine what support should be paid after the divorce (Lewis, 2009).

In this instance, industrial psychologists are expected to interact with all parties involved, which may or may not include also interviewing the children. Possible emotions displayed by individuals during the forensic assessment process may include anger, resentment, revenge or even relief.

2.6.3 Employment relationships

A breakdown in the employment relationship can also result in a loss of income claim. This usually happens when unfair labour practices occur (Lewis, 2009). A case in point would be an individual's contract of employment being terminated in such a way that it prevents him or her gaining new employment. He or she would therefore be eligible to claim for loss of income (Lewis, 2009).

People involved in this type of loss of claim include the claimant, his or her employer and/or a representative of the organisation's top management. The particular organisation involved usually includes the business where the claimant is or was employed and labour related organisations. Anger on the part of the claimant may be one of the emotions portrayed in this type of claim.

From the above mentioned descriptions of the three types of loss of income claims, the researcher is led to believe that the forensic context, in which the industrial psychologist operates, can be described in terms of the information that is and becomes available throughout the claim, the types of organisations involved, the people involved in the claim as well as the emotions that are portrayed by claimants and their relatives.

2.7 AN INITIAL CONCEPTUAL FRAMEWORK

From the literature review an initial conceptual framework, which illustrates who is to be included in the empirical study as well as the major constructs involved, was constructed.

Figure 1: Initial conceptual framework

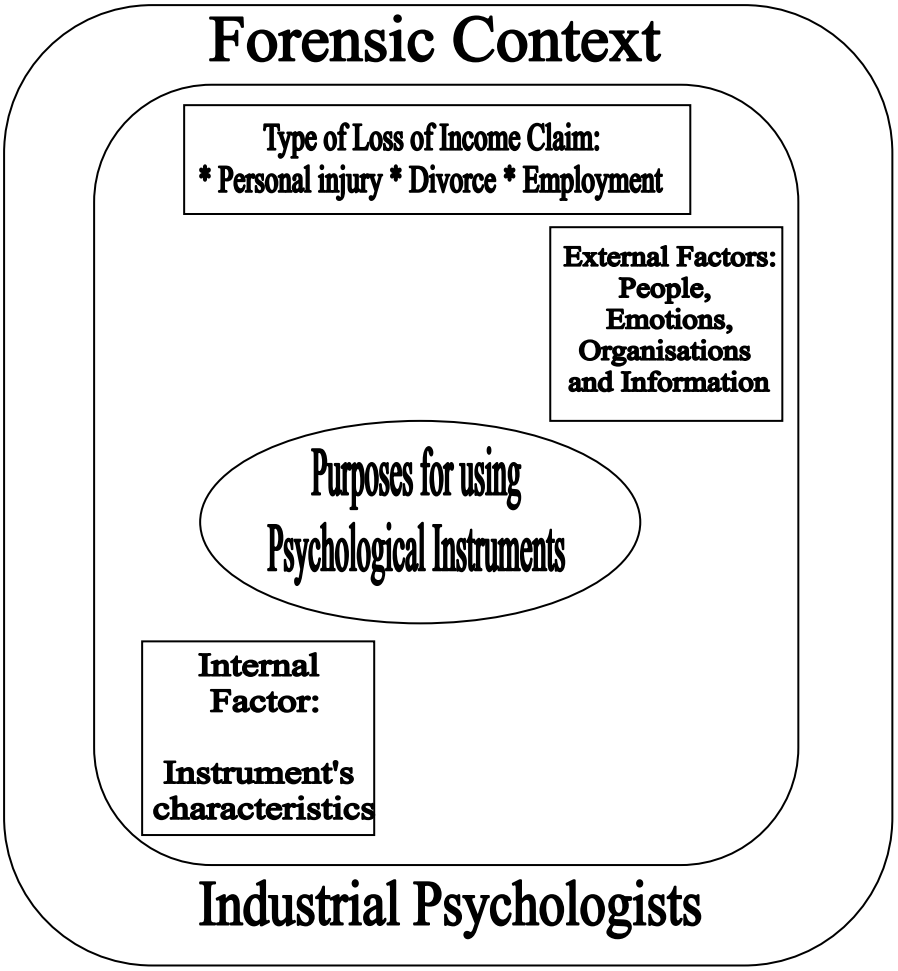

Figure 1 illustrates that the empirical study would include industrial psychologists working in the forensic context. The types of loss of income claims encountered in this context would be personal injury claims, divorce actions and employment relationship claims. Three other constructs are also included in the framework. The purposes for using psychological instruments is regarded as the central construct as it represents the main research question. The internal factors refer to psychological instruments' characteristics and the external factors refer to the people, emotions, organisations and information involved in a specific type of loss of income claim. With this conceptual framework in mind, the researcher set out to conduct the empirical study.

2.8 CHAPTER SUMMARY

Chapter 2 highlighted the development of forensic psychology and explained how modern forensic psychology is believed to have partly originated from society's need to establish rules for dealing with different kinds of conflicts or disputes, but mostly from researchers' growing interest in the applicability of psychology in the legal environment. The argument was also made that the apparent lack of interest on the part of South African forensic psychologists may be responsible for the slow development of forensic psychology in South Africa.

Chapter 2 then explained what psychological instruments are, their characteristics and their use in the forensic context. International and local research and surveys have shown that psychological instruments can be applicable and practical to a greater or lesser extent in the forensic context and their purpose can even extend beyond the purpose for which they were originally developed. A limitation of these international and local studies was that most of them failed to distinguish between the different types of forensic psychologists. While credit was given to a South African study focusing on a specific group of forensic psychologists, the limited amount of research on this topic compelled the researcher to independently explore the purposes for which industrial psychologists use psychological instruments in loss of income claims.

Thirdly, chapter 2 described the forensic context in which the industrial psychologist operates. It was revealed that industrial psychologists practising as forensic psychologists are mainly involved in civil litigation cases that include claims arising out of personal injuries, divorce actions and employment relationships. The researcher inferred that the forensic context could be described in terms of the type of information, people, organisations and emotions that the industrial psychologist is faced with during the quantification of a loss of income claim.

Lastly, chapter 2 described the initial conceptual framework for the empirical study.

The next chapter is in the form of a research article, which briefly examines the literature on the research topic, the research design and the findings of the empirical study. Recommendations for future research are also made.

CHAPTER 3: RESEARCH ARTICLE

UNRAVELLING THE VARIOUS PURPOSES FOR WHICH INDUSTRIAL PSYCHOLOGISTS USE PSYCHOLOGICAL INSTRUMENTS IN LOSS OF INCOME CLAIMS

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ABSTRACT

This qualitative study was conducted in order to explore the purposes for which industrial psychologists use psychological instruments in loss of income claims. Two additional aims were to explore the psychological instruments used and the kind of information needed in the forensic context by means of psychological assessment. Said information is currently not available by means of existing psychological instruments. There were two reasons for conducting the study. The first is the fact that there is a dearth of South African research relating to the purposes for using psychological instruments in the forensic context. Secondly, it is suspected that overtesting occurs in the industry, which may imply that industrial psychologists do not understand the

purposes for using psychological instruments to help quantify loss of income claims. To build on existing literature, a literature study and an exploratory study was undertaken. A multiple-case study approach, comprising of four semi-structured individual interviews with industrial psychologists, was used. Data was coded and analysed by identifying within-case themes and cross-case themes. The analyses of the interview data highlighted three primary themes, namely (1) the value versus the futility of using psychological instruments, (2) the situational applicability of psychological instruments, and (3) psychological instruments found wanting. The psychological instruments that are typically used and those, which are needed to provide specific information to the forensic context but not yet available, were also identified. It is hoped that current and prospective forensic industrial psychologists will become aware of their peer-recognised practices and use these findings to improve their own forensic evaluation practices.

Key words

Psychological instrument; forensic context; constructivist paradigm; exploratory qualitative research; multiple-case study; industrial psychologist; loss of income claim; forensic psychology; semi-structured interview; within- and across- case analysis.

INTRODUCTION

Psychological instruments are commonly employed in the 21st century forensic context (Archer, Buffington-Vollum, Stredny & Handel, 2006; Camara, Nathan & Puente, 2000; Lally, 2003). From civil litigation issues such as personal injury claims, divorce actions, employment disputes to criminal cases such as juvenile sentencing, competency to stand trial and to be sentenced and insanity defences, there is scarcely a type of legal dispute for which some kind of psychological instrument has not proven helpful (Naylor, Vorster, Cronjè & Donaldson, 2009). But why is the use of a psychological instrument in the forensic context helpful? What purpose does it fulfil?

Many ethical codes including the *Ethical Code of Professional Conduct* (Health Professions Council of South Africa, 2002) and the *Code of Practice for Psychological and Other Similar Assessment* (Society for Industrial and Organisational Psychology of South Africa, 2006)

emphasises the importance of using psychological instruments for appropriate or suitable purposes. However, this ethical guideline does not seem to have inspired much South African research elaborating on the purposes for which psychologists use psychological instruments in the forensic context. Most research on psychological assessment in the forensic context is in the USA and mainly focused on surveying the psychological instruments commonly used (Archer *et al*., 2006; Lally, 2003; Piotrowski, 2007).

Two consequences stemming from the apparent lack of integrated information on the use of psychological instruments in the South African forensic context can be identified. Firstly, it may contribute to Louw and Allan's (1998) finding that psychologists feel that their forensic training is inadequate and that they receive little guidance from their profession. Secondly, overtesting seems to be a reality amongst psychologists practising in the forensic context (Naylor *et al*., 2009). Naylor *et al.* (2009) explain that not only is overtesting considered to be an unethical practice, but it also increases the claimant's legal costs. After considering these problems, it was decided to use multiple-case study qualitative research to explore the purposes for which psychologists use psychological instruments in loss of income claims and the psychological instruments that are used. Another aim of the study was to explore what kind of information is needed in the forensic context, which is currently not available by means of existing psychological assessment.

Psychological assessment in the forensic context

A psychological instrument is described as an assessment instrument with three defining characteristics, namely that it is a sample of behaviour obtained under standardised conditions and scored or interpreted by using either established rules for obtaining numerical information from the behaviour sample or methods for interpreting the behavior sample (Murphy & Davidshofer, 2001). The aim of administering psychological instruments is to measure or interpret personal attributes in an attempt to describe, understand or predict individual behaviour (Foxcroft & Roodt, 2001; Murphy & Davidshofer, 2001). Apart from these characteristics, psychological instruments also have other characteristics that make them applicable and practical to a greater or lesser extent in a variety of contexts.

Although psychological instruments are more commonly known to be used in the clinical context, they are also applied in the forensic context (Gregory, 2007; Naylor *et al*., 2009). Naylor *et al.* (2009) and Witt and Weitz (2007) list a number of advantages of using psychological instruments in the forensic environment:

- Psychological instruments can reduce the complexity of human behaviour to a manageable portion in order to predict future behavior. Since psychological instruments are designed to assess a specific aspect of behaviour, the forensic psychologist needs only to use an instrument relevant to the specific behaviour he or she needs to testify on. There is no need to assess the subject's entire psyche.

- Psychological instruments' structured format makes it easier and quicker to obtain information from individuals who are hesitant to disclose information during face-to-face interviews. The psychologist can simply administer an instrument instead of spending long hours trying different approaches in order to assess a reluctant subject.

- The information obtained from psychological instruments is often more scientifically consistent than information obtained from interviews. This is because of the technical reliability standard that all psychological instruments have to comply with. As opposed to psychological instruments, responses elicited from interviews are less consistent because it is largely a factor of the interviewer's ability to conduct an interview (May, 2001). Whilst a psychological instrument will elicit the same responses when administered by different people, an interview will not.

- The use of psychological instruments allows for a structured and standardised assessment of an individual's current symptoms. By following an organised and prescribed assessment method, as provided by a psychological instrument, the forensic psychologist is able to provide a detailed account of the diagnostic process followed. This may enhance the credibility of the psychologist's professional opinion.

- Using objective psychological instruments in conjunction with collateral information can assist in determining whether a person is malingering or exaggerating psychological symptoms. Validity scales, built into some psychological instruments (Witt & Weitz, 2007), can be used to compare a subject's responses to various clinical samples. This

gives the psychologist an indication of the subject's truthfulness regarding psychological symptoms reported. The psychologist's professional opinion can also be strengthened by using this information.

The above mentioned advantages touch on psychological instruments' characteristics that make them applicable and practical to use in the forensic context. However, psychological instruments do differ from one another. This implies that the forensic psychologist needs to have a thorough knowledge of the field of psychological assessment, in order to truly benefit from using a specific psychological instrument. This includes knowing what instruments are used and the purposes for which they are used (Gregory, 2007; Packer, 2008; Shapiro, 1984).

Internationally, many research studies have focused on the use of psychological instruments in the forensic context (Archer *et al*., 2006; Camara, *et al*., 2000; Lally, 2003; Piotrowski, 2007). Lowenstein (2002) found that forensic psychologists frequently use the following five kinds of standardised assessments: (1) intelligence or ability tests; (2) academic attainment tests; (3) objective personality inventories; (4) projective personality techniques, and (5) specialised psychological instruments. These research studies touch on the specific psychological instruments used in the forensic context and the purposes for which they are used.

Intelligence testing and academic attainment tests

Intelligence tests are often used in legal cases in which a subject's intellectual capacity is questioned. In child custody evaluations, intelligence tests are used to determine if a parent suing for custody of a child will be able to provide adequate intellectual support during the child's cognitive development (Ackerman, 1999). These tests are also used in competence to stand trial cases and criminal responsibility cases to determine if the person can distinguish between right and wrong (Vorster, Cramer & Burke, 2009). The outcome of the test results then determines whether or not the person can be subjected to criminal charges (Melton, Petrila, Poythress, & Slobogin, 1987).

While it is recommended that academic attainment tests be used to verify the alleged expertise of so-called "experts" (Lowenstein, 2002), this use is not practical. The administration of an

academic attainment test to assess experts' capacity to read, write and achieve academic qualifications is far too time-consuming and expensive considering the vast number of experts that could become involved in a legal case. Judges generally rely on qualifications and experience to verify expert status (Roos & Vorster, 2009). However, survey research conducted by Archer *et al*. (2006) found that Wechsler intelligence scales such as the *Wechsler Adult Intelligence Scale III*, the *Wechsler Adult Intelligence Scale – Revised*, the *Wechsler Memory Scale* and the *Wide Range Achievement Test* were the most widely used intelligence and achievement tests in the forensic context.

Objective personality inventories and projective personality techniques

In the forensic context, objective personality inventories seem to be used in competency to stand trial cases as well as criminal responsibility cases (Borum & Grisso, 1995). These instruments are generally used to assess factors such as psychoticism, stability, motivation to achieve, aggression, social ability and other aspects of behaviour, attitude and personality (Lowenstein, 2002). However, because of the substantial monetary benefits associated with legal matters such as personal injury claims, some objective personality inventories are also used to identify malingering of psychological symptoms (Bryant, 2003; Kaiser, 1986). Two of examples include the *Minnesota Multiphasic Personality Inventory* and the *Personality Assessment Inventory*. Archer *et al*.'s (2006) survey shows that the *Minnesota Multiphasic Personality Inventory* was used by more forensic professionals included in their study sample, but that the *Personality Assessment Inventory* was used more frequently.

Similar to academic attainment tests, the practicality of using projective personality techniques in the forensic context is questionable. Lowenstein (2002) reports that projective personality techniques are used to identify a person's level of adjustment after having experienced a traumatic event (Lowenstein, 2002). They can also be used in conjunction with other psychological instruments to obtain insight into an individual's way of thinking (Lowenstein, 2002). However, forensic psychologists are strongly advised against the use of this type of personality instrument because the different interpretations of the technique's results by psychologists can be extremely confusing for judges and juries (Kaiser, 1986). Nevertheless,

surveys conducted in the USA indicate that the *Rorschach Psychodiagnostic Inkblots*, the *Sentence Completion Test* and the *Thematic Apperception Test* are the most frequently used projective techniques (Archer *et al*., 2006; Luben, Larsen & Matarazzo, 1984).

Specialised psychological instruments

Specialised psychological instruments are defined as psychological instruments that were developed for specific purposes such as the assessment of suicidal tendencies, clinical depression, violence risk, sanity and malingering (Ackerman, 1999; Archer *et al*., 2006; Lowenstein, 2002). As can be inferred from the following examples, the decision to use such a psychological instrument seems to be influenced by the specific legal matter at hand. Since clinical depression has been found to be related to future violence (Ackerman, 1999), instruments such as the *Beck Depression Inventory – II* and the *Beck Anxiety Inventory* are frequently used in the forensic context as part of violence risk assessment (Archer *et al*., 2006). Furthermore, instruments such as the *Psychopathy Checklist* and the *Historical Clinical Risk – 20* are often used to assess whether a person is a danger to society and should therefore be involuntarily committed (Ackerman, 1999; Archer *et al*., 2006).

From the above it is evident that the purposes, for which psychological instruments were developed, and their characteristics make them applicable and practical to a greater or lesser extent in the forensic context. In the case of objective personality inventories, the purpose for which the instrument is used even stretches beyond the original purpose it was developed for. However, all of the above mentioned survey studies described the specific psychological instruments and their use in countries abroad. This being a South African research study also requires some description of the application of psychological instruments in the South African forensic context.

Application of psychological instruments in the South African forensic context

In South Africa, less research has been done on which instruments are commonly used in the forensic context and their purpose. In an attempt to develop a profile of forensic psychologists in

South Africa, Louw and Allan (1998) also found that assessment techniques used in psycho-legal evaluations included interviewing, hypnosis and psychological testing. Furthermore, it was found that intelligence tests are often used in criminal cases and custody hearings to measure an individual's intellectual potential (Naylor *et al*., 2009). Objective personality inventories are primarily used to help with clinical diagnosis, the most popular psychological instruments being the *Minnesota Multiphasic Personality Inventory* and the *Sixteen Personality Factor Questionnaire* (Naylor *et al*., 2009). The *Rorschach Inkblot Test* and the *Thematic Apperception Test* are popular projective techniques used in forensic assessments (Naylor *et al.*, 2009).

Another South African study that touches on the use of psychological instruments in the forensic context is that of Moodie (1992). Moodie (1992) researched the role of the industrial psychologist in quantifying third-party claims by means of using a case study approach. In the case study it was evident that intelligence tests were used to help predict a claimant's qualification level by comparing pre-accident school or work performance with current tested ability (Moodie, 1992). According to Moodie (1992), projective personality techniques like the *Thematic Apperception Test* and the *Sentence Completion Test* were used to identify the plaintiff's personal adjustment after an accident. Furthermore, interest questionnaires like the *Kuder Interest Questionnaire* and the *Rothwell Miller Interest Questionnaire* were used to determine if there was any agreement between the plaintiff's pre- and post-accident career interests (Moodie, 1992). Although Moodie (1992) appears to have succeeded in explaining the role of the industrial psychologist in quantifying third-party claims, the use of a single case study would not provide detailed answers to the research questions that this research set out to obtain.

It is interesting to note that most of the mentioned research studies only focused on surveying a combination of clinical psychologists and psychiatrists or neuro-psychologists (Camara *et al*., 2000; Peyrot, 1995) or did not distinguish at all between the different types of forensic psychologists (Archer *et al*., 2006; Borum & Grisso, 1995; Louw & Allan, 1998; Luben *et al.*, 1984; Mullen & Edens, 2008). According to Piotrowski (2007), instruments used for a specific purpose may vary on the basis of the professional identity of the tester or a particular setting. Taking this into consideration, it was decided that the current research study should focus on a specific type of psychologist namely, the industrial psychologist. However, this requires some description of the forensic context in which the industrial psychologist operates.

The forensic context in which the industrial psychologist operates

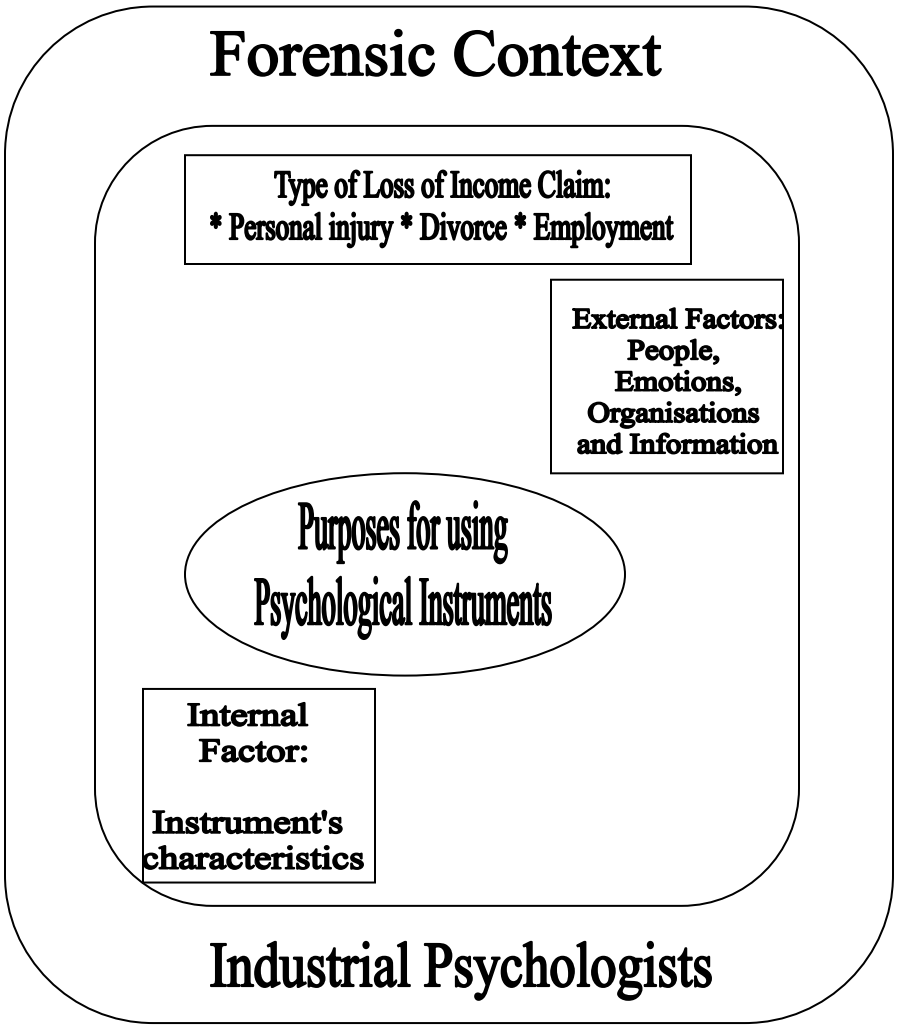
Industrial psychologists represent one type of forensic psychologist involved in legal disputes that take up most of the South African courts' time. Generally, the role of an industrial psychologist is to understand, explain, predict and influence human behaviour and experience in the work-place (Theron, 2003). However, in the forensic context, industrial psychologists are called on whenever a person's ability to work, to continue and/or to advance in his or her present career is affected by an accident or incident (Whittaker, 2007). In this context, the role of the industrial psychologist is to project the earnings had the accident or incident not occurred as well as the earnings now that the accident or incident has occurred (Whittaker, 2007). This means that the industrial psychologist has to quantify or calculate past and/or future loss of income that a claimant might have sustained because of an accident or incident. It is the industrial psychologist's knowledge of employment requirements, practices, legislation, remuneration and opportunities or lack thereof in the job market that makes this professional especially suited to assist legal teams in quantifying loss of income claims (Kaiser, 1986; Lewis, 2009).

When quantifying loss of income claims, industrial psychologists have to meet all the normal criteria of proper forensic assessment which include obtaining information from the claimant, other collateral resources such as employers and family members as well as using psychological instruments to obtain relevant information (Lewis, 2009). This implies that the forensic context, in which the industrial psychologist operates, can be described in terms of the type of information, people, organisations and emotions involved in the legal matter. To a large extent, these are influenced by the type of loss of income claim the industrial psychologist is involved with. Typical claims that require the involvement of an industrial psychologist are personal injury claims, divorce actions and breakdowns in employment relationships (Lewis, 2009). The nature of these claims involves dealing with information such as the details surrounding the specific occurrence, the medical history and hospital records of the claimant, work related information such as salary slips, South African Revenue Service documentation, business or individual work performance records, as well as psycho-legal reports containing the professional opinions of other specialists. Furthermore, these claims involve interacting with people who are injured, disabled or bereaved, professionally qualified individuals or lay people and organisations such the Road Accident Fund, insurance companies, medical institutions and private companies. From the

nature of the various claims it can also be inferred that industrial psychologists are possibly confronted with emotions such as anger, frustration, resentment, relief or even sadness on the part of claimants.

Figure 1 illustrates the initial conceptual framework that was constructed based on the literature review. The initial conceptual framework outlines the context of the empirical study in terms of all the different constructs involved.

Figure 1: Initial conceptual framework



From figure 1 it can be inferred that the empirical study would include industrial psychologists working in the forensic context. The types of loss of income claims encountered in this context would be personal injury claims, divorce actions and employment relationship claims. Three other constructs are also included in the framework. The purposes for using psychological instruments are regarded as the central construct as it represents the main research question. The internal factor refers to psychological instrument's characteristics and the external factors refer to the people, emotions, organisations and information involved in a specific type of loss of income claim. With this conceptual framework in mind, the researcher set out to explore the purposes for using psychological instruments in loss of income claims.

It was anticipated that forensic industrial psychologists could benefit from the research in a number of ways. Firstly, the research would inform industrial psychologists of the typical practices of their peers, thereby ensuring that legal and admissible information is presented to the legal system. In return, this would also enhance their credibility in the legal context. Secondly, the research findings would inform current and future forensic industrial psychologists' choice of instruments and also inform them of the purposes for using psychological instruments in an attempt to diminish overtesting in the industry. Another advantage would be to identify possible limitations in the type of psychological instruments currently available, which hopefully could inspire the development of new instruments.

What follows is a detailed description of the research design, the research findings and discussion, the research limitations that were encountered and recommendations for future research.

RESEARCH DESIGN

Research approach

The research was conducted from a constructive qualitative tradition. The basic premise of constructivism is that truth is relative and therefore a person's reality is constructed from his or her own perspective (Crabtree & Miller, 1999; Searle, 1995). From the literature review, the

researcher was able to construct a theoretical or conceptual framework to outline the context of the empirical study. The constructive tradition was also applicable to the empirical study because the researcher believed that industrial psychologists' experience in the forensic context may have influenced or constructed their opinions, feelings and attitudes towards the instruments used and the purposes for which they are used in loss of income claims. Furthermore, qualitative research provides a naturalistic study of phenomena as they unfold in real-world situations (Durrheim, 2006). This allowed for the gathering of industrial psychologists' opinions, feelings and attitudes regarding the purposes for which psychological instruments are used in loss of income claims.

The literature study of the research was descriptive, while the empirical study was exploratory in nature. The literature study aimed to provide a detailed description of the research context to provide the necessary background and framework for conducting the exploratory study (Mouton & Marais, 1994; Yin, 2003). An exploratory multiple-case study approach was deemed appropriate for the empirical research. Exploratory studies are commonly used to describe phenomena about which little is known and to gain new insights into it (Cavaye, 1996; Given, 2006). The lack of research on the research topic has already been pointed out. Furthermore, a case study approach was used. A case study approach is often praised for its ability to explore gathered data in a real-life environment (Yin, 2003). According to Yin (2003) a case study should be used when (a) the researcher cannot manipulate the behaviour of those involved in the study; (b) the researcher wants to cover contextual conditions because it is believed that they are relevant to the phenomenon under study; or (c) the boundaries are not clear between the phenomenon and context. In this empirical study, the researcher could not manipulate the behaviour or viewpoints of the industrial psychologists. The researcher believed that the forensic context comprised of constructs relevant to the purposes for using psychological instruments and therefore the boundaries between the two were unclear. Furthermore, the use of multiple case studies allowed a more thorough exploration of the research topic by identifying similarities and differences within and between cases (Yin, 2003).

Research method

This research was conducted in two phases. Phase 1 comprised of a literature review that aimed to describe the existing body of research literature regarding the research area of interest (Darke, Shanks & Broadbent, 1998). From this a conceptual framework (figure 1) was derived. The conceptual framework gave some direction and structure for the initial set of questions the researcher asked and positioned the research questions within the context of the existing literature (Aaltio & Heilmann, 2009; Darke *et al*., 1998).

Phase 2 entailed the exploratory multiple-case study research. The research setting, entry and establishing researcher roles, sampling, data collection methods, recording of data, data analysis, strategies employed to ensure data quality and reporting are elucidated below.

Research setting

Irvine and Gaffikin (2006) articulate four factors that influence the choice of research setting including the purpose of the research, the scope it offers for the collection of rich data, the area of inquiry the researcher initially finds appealing and the possibility of gaining access. The choice of the research setting for the research study was influenced by three of the four factors mentioned.

The overall purpose of the research being to explore the purposes for which psychological instruments as used in loss of income claims, took presidence in deciding on the setting for the research. The research took place in the forensic context in which industrial psychologists in the Pretoria area work. Industrial psychologists from different private practices specialising in forensic work participated in the research. All the participating industrial psychologists mentioned that the majority of the loss of income claims they deal with are Road Accident Fund claims (motor vehicle accident claims), followed by medical negligence claims, insurance claims and loss of support claims. The scope of the chosen setting would therefore provide for rich data collection. Furthermore, the research setting was influenced by an “ease of access” factor (Irvine & Gaffikin, 2006, p. 122). The researcher chose the setting because she was familiar with various forensic private practices in the Pretoria area and therefore had no trouble gaining access.

Entry and establishing research roles

Obtaining or negotiating access to a research setting is crucial to the success of the research study (Irvine & Gaffikin, 2006; Kelly, 2006). Kelly (2006) explains that this can be a difficult process depending on the nature of the study. Whilst some settings are relatively open, other setting are more difficult to get into (Kelly, 2006). Because the researcher had previously been employed in a private practice involved in forensic work, opportunities to enter the research setting were gained by mentioning the researcher's interest in the forensic field and the contribution the industrial psychologists would be making to the research study if they agreed to participate. Furthermore, the researcher fully explained the aim of the research and advantages. In this regard, Irvine and Gaffikin (2006) state that mentioning possible benefits to individuals or organisations to gain access to the research setting must be done ethically. The researcher did not make any promises of individual benefits, but undertook to send a copy of the findings in the format of a research article to each participant.

In this qualitative research study, the researcher's role was to be the primary instrument for collecting and analysing the data (Terre Blanche, Kelly & Durrheim, 2006). This required the researcher to develop a set of questions for collecting the data and to analyse and synthesize the data while remaining conscious of the effect of her presence.

In fulfilling the role of data collector, the researcher needed to develop and use specific interpersonal skills such as being sensitive, listening, looking, questioning and probing (Botha, 2001; Terre Blanche *et al*., 2006). During the pilot interview, the researcher found it difficult not to voice her personal opinions. However, the researcher soon realised how much the research results depended on the participants' responses and that her role was to question and probe (Botha, 2001; Maykut & Morehouse, 1994). In conducting the other interviews, the researcher made use of some of her skills as a job interviewer to fulfill the necessary interpersonal skill requirements. In this regard Maykut and Morehouse (1994, p. 81) advocate that "[T]he characteristics of a good qualitative interviewer are much the same as those that characterise people who are able to tactfully inquire and hear what others are saying". The researcher also established rapport through positive verbal encouragers such as "hmm", "ok" and "uh-uh" as well as nonverbal encouragers such as maintaining good eye contact, smiling and displaying open

body language (Blurner cited in Miller & Glassner, 1997, p. 100). This ensured that participants felt comfortable with the process and competent to respond to interview questions and probes.

During the introduction phase of the pilot interview, the researcher became very aware of the potential influence of her presence when she was asked about her experience in the forensic field. Although this gave some credibility to the researcher, it was noted that the interviewee's responses to the questions were primarily geared towards accepting that the researcher had an in-depth knowledge of forensic industry activities by often saying *"you know"*. Fearing that this might influence the data that was gathered and the eventual findings of the research (Maykut & Morehouse, 1994; Terre Blanche *et al*., 2006), the researcher took care not to disclose previous involvement in a forensic private practice until after the other participants had answered the questions pertaining to the empirical study.

Sampling

Miles and Huberman (1994, p. 25) define a case as "... a phenomenon of some sort occurring in a bounded context" and explain that "... the case is in effect, the unit of analysis". In this research study a "case" was defined as a single interview with an industrial psychologist regarding the applicability of psychological instruments in loss of income claims. Therefore, the sampling of the cases actually refers to the sampling of the participants (industrial psychologists).

Case studies are often found through the researcher's own network (Aaltio & Heilmann, 2009). Having worked in the forensic context the researcher knew where to get hold of the contact details of industrial psychologists practising in the forensic context. *The quantum yearbook 2009* compiled by Kogh (2009) lists the contact details of various types of psychologists practising in forensics. The list of industrial psychologists (earnings' experts) practising in the Pretoria area of Gauteng was used as a sampling framework.

As this was a multiple-case study, the number of cases to be studied was a valid question. Harling (2002) states that while too few cases limit generalisation, too many lead to data overload. According to researchers, the number of cases to sample depends on the focus of the research question and on the research setting (Aaltio & Heilmann, 2009; Darke *et al*., 1998). Eisenhardt

(1989) suggests that between four and ten cases are desirable for theory building. As one of the goals of the research was to add to existing knowledge and theory, four cases were initially sampled.

The sampling of the four participants (cases) was purposive. The purposive sampling implied that not only was sampling depended on participants' availability and willingness to participate, but that participants were typical of the population selected (Durrheim & Painter, 2006). The availability and willingness of participants to participate was established by means of telephonic requests. Participants were "typical" of the population selected as they were industrial psychologists practicing forensics. Furthermore, a criterion of a minimum of three years' psycho-legal experience was used to sample participants. This length of experience would have allowed them to either have been involved in a wide variety of cases or have given them a chance to obtain a great deal of learning experience in specific types of cases. The criterion therefore allowed sampling of similar cases for literal replication (Yin, 2003).

In this multiple-case study research a point of saturation was reached during the combined process of data gathering and preliminary analysis when no new data was being added (Aaltio & Heilman, 2009; Yin, 2003). By the third and fourth interviews the researcher realised that the same issues were being repeated in the participant's responses to questions. There was no need to carry out the contingency plan of contacting and requesting additional industrial psychologists to participate in the research study.

Owing to the need to ensure the validity of interview responses, the credibility of the participants (industrial psychologists) was determined by asking them questions about their professional experience in the forensic field. Table 1 (see next page) describes the participants' psycho-legal experience.

Table 1: Psycho-legal experience of participants

Participant	Years practising as registered IP	Years practising in forensic context	No. of psycho-legal reports submitted in 2009	No. of court appearances in 2009
A	27	5	200	8
B	18	6	100-120	3
C	18	4	200	10
D	12	4	120	2

The participants comprised four industrial psychologists. Each industrial psychologist had at least been registered as an industrial psychologist for 12 years and had had at least four years' experience in the forensic context. While some participants submitted around 200 psycho-legal reports in the year 2009, others submitted only 100 to 120 in the same year.

The ratios for the number of appearances in court as opposed to the number of reports submitted differ markedly among the industrial psychologists. For example, industrial psychologist C goes to court roughly about once for every 20 reports written, while industrial psychologist D goes once for every 60 reports written. However, for all practical purposes, one should not simply assume that the number of court appearances only has to do with the quality of the industrial psychologist's report. Participants mentioned that their expert testimony is sometimes required because of differences among other experts or the legal representatives. Further elaboration on the reasons for appearing in court, however, is beyond the scope of this research study.

Table 1 complements the following brief description of the four case studies used:

The first case study refers to the interview with participant A. Participant A is the owner of an industrial psychologist firm, who has 27 years' experience of practicing as a registered industrial psychologist and 5 years' experience of practicing in the forensic context. During the year of 2009, participant A had written approximately 200 psycho-legal reports in 2009 and had appeared only 8 times in court. The pilot interview conducted with this participant lasted approximately 45 minutes and 15 pages of transcribed text were retrieved.

The second case study refers to the interview with participant B. Participant B is a partner in an industrial psychologist firm. Participant B has 18 years' experience practicing as a registered industrial psychologist and 6 years' experience of practicing in the forensic context. This participant wrote approximately 100-120 psycho-legal reports during the course of 2009 and appeared 3 times in court during the same year. The interview conducted with this participant lasted approximately 1 hour and 13 pages of transcribed text were retrieved.

The third case study refers to the interview with participant C. This participant was also an owner of an industrial psychological firm. The participant has 18 years' experience practicing as a registered industrial psychologist and 4 years' experience of practicing in the forensic context. During 2009, participant C had written approximately 200 psycho-legal reports and appeared in court approximately 10 times. The interview conducted with this participant lasted approximately 50 minutes and 14 pages of transcribed text were retrieved.

The fourth case study refers to the interview with participant D. Participant D is an associate in an industrial psychologist firm who has 12 years' experience of practicing as a registered industrial psychologist and 4 years' experience of practicing in the forensic context. Participant D wrote approximately 120 psycho-legal reports during 2009 and appeared in court only 2 times during the same year. The interview conducted with this participant lasted approximately 45 minutes and 11 pages of transcribed text were retrieved.

Because the cases studies in this research refer to the interviews with the participants regarding the research topic, a full description of each interview is beyond the scope of this article. However, the researcher endeavored to provide a detailed description of the research findings, in which some of the interview responses of the various participants are provided.

Data collection method

Although case study research usually makes use of multiple sources of data, data were only collected by means of face-to-face semi-structured interviews held during May 2010. Access to psycho-legal reports was restricted due to legal issues (Personal communication, May 2010). The four industrial psychologists, who agreed to participate in the research, indicated suitable times,

dates and venues of their availability. This is in accordance with Henning, Van Rensburg and Smit (2004) who point out that researchers must schedule interviews for a specific time and place. Each interview was conducted during working hours.

The interview can be described as a data gathering tool that comprises of a dialogue between the researcher and a subject (Davies, 2006; Henning *et al.*, 2004). The subject is asked a series of questions relevant to the topic of the research and the responses are the raw data that is analysed at a later stage (Henning *et al.*, 2004). Although various forms of interviews exist, semi-structured interviews were used to collect data, because this method "... is a more natural form of interacting with people" (Kelly, 2006, p. 297). It also allowed the researcher to ask specific questions whilst remaining free to probe for more clarification and elaboration (May, 2001).

The validity and reliability of data gathered by using the interview technique are sometimes regarded with a certain amount of suspicion (Botha, 2001). To ensure that the interview responses were valid, the credibility of the participants (industrial psychologists) was determined by asking them questions about their professional experience in the forensic field. Responses are depicted in Table 1. Fearing that the validity of the data analysis might be compromised on account of language differences between the interviewer and the interviewees (Botha, 2001), all interviews were conducted in English to ensure the validity of the interpretation of the interview data. Furthermore, the language proficiency of the participants was assumed to be adequate since they were professionally registered individuals.

The interview schedule was developed by reviewing relevant literature, writing out the focus of the research study, considering guidelines for developing interview questions, asking experienced researchers to check the interview questions and structuring the interview questions in a logical sequence (Kelly, 2006; Kerlinger & Lee, 2000; Maykut & Morehouse, 1994; Welman & Kruger, 2003). Interview questions were formulated around the aims of the empirical study. Care was taken not to formulate interview questions that were too general, ambiguous or leading. Experienced researchers were asked to check the initial interview questions for flaws and their comments integrated. The researcher then piloted the initial interview questions by means of the first interview. This ensured that the questions would be useful and asked in the correct manner (Kelly, 2006; Welman & Kruger, 2003). The experience of conducting the pilot interview also afforded the novice researcher an opportunity to understand what level of trust needed to be

established (the interviewee expressing how confidential some information is), how the power of suggestion through an approving nod or disapproving frown can influence the respondent's further response and to understand the importance of listening skills combined with effective probing (Creswell, 2003; Maykut & Morehouse, 1994). These experiences were then used to improve the interviewer's skills during the remaining (second, third and fourth) interviews.

The interview schedule comprised of the following questions:

- "What does your forensic evaluation process usually entail?"
- "What is your attitude towards psychological assessment in the forensic context?"
- "Tell me about the purposes for which you use psychological instruments in loss of income claims?"
- "What is your opinion on overtesting in the industry?"
- "Can you elaborate more on the specific psychological instruments that you use when quantifying loss of income claims?"
- "Tell me about the information that you feel is needed in loss of income claims, which is not currently available by means of existing psychological instruments?"

Administration guidelines for conducting interviews as described by various researchers were followed (Creswell, 2003; Henning *et al*., 2004; Kelly, 2006; Maykut & Morehouse, 1994). To set the scene for the interview, the introductory briefing included thanking the participants for their willingness to participate in the research study, explaining the purpose of the research study and indicating how long the interview would take. After this the researcher facilitated the signing of the consent form which covered ethical considerations and concerns. The researcher then proceeded with the interview questions. Subjects were also probed for clarifications and expansions. The following probes were used:

- "Can you tell me more about that?"
- "Can you give me an example of that?"
- "Uhm", "uh-huh" and "ok".

Once the researcher felt that the interview questions were answered and each of the responses were clarified or expanded upon, the researcher concluded the interview. This was done by asking if the participant had any questions, summing the interview up and thanking the participant for his or her time and input. This was in accordance with guidelines as stipulated by Henning *et al*. (2004).

Recording of data

The recording of data is a vital part of the qualitative research process (Creswell, 2003; Patton, 1990). The interviews were recorded using a digital voice-recorder. This enabled the researcher to keep a full record of the interviews without having to be distracted by detailed note keeping (Kelly, 2006). Although recording the interviews had this advantage, Creswell (2003) and Henning *et al*. (2004) warn that machines are prone to mechanical failure when one least expects it. To reduce the risk of losing data because of mechanical failure, the researcher kept a second pair of batteries for the digital voice-recorder on stand-by, tested the digital voice-recorder before commencing each interview and kept checking that it was still operating throughout the interview. During the interviews, process notes were also made to capture unspoken detail such as laughs, pauses and facial expressions (Creswell, 2003; Ely, 1991; Kelly, 2006).

The interviews were transcribed verbatim for analysis. The transcription of the interviews also facilitated the process of referring back and forth to different parts of an interview when it is on paper (Kelly, 2006; Maykut & Morehouse, 1994; Parker, 2005). In this regard, Parker (2005) makes recommendations about what should be marked in transcriptions, for example, the names of the speakers, moments of hesitation, ringing cell phones, and so on. Process notes were also integrated into the transcribed interviews. This was used to enhance the analysis of the interview data (Creswell, 2003; Ely, 1991; Kelly, 2006). To ensure accurate transcription, the researcher again listened to the interviews (Creswell, 2003). The transcription phase resulted in approximately 53 pages of single space text. Transcribed interviews were also sent to the different participants in order to verify the accuracy of the data records (Botha, 2001; Maykut & Morehouse, 1994; Neuman, 2000). All the participants responded that it was an accurate recount of their input. The data files were then stored in a secure location and back-up files were made.

Data analysis

As each case study is unique there is no single right way to analyse case study data (Leedy & Ormrod, 2001). The multiple-case study data (comprising of interview transcripts of the four participants interviewed), was analysed by using data reduction and data display methods as well as within-case analysis and across-case analysis.

Firstly, data reduction by means of coding was done (Miles & Huberman, 1994; Yin, 2003). The first interview transcript was read carefully and initial ideas that could be used as codes or themes were written down. This was done by keeping the research questions in mind (Yin, 2003). The researcher then proceeded to use open-coding by taking the data apart (Strauss & Corbin, 1990). Each sentence or part thereof that seemed relevant to a research question was given a name and then regrouped into sub-themes, which in turn was grouped as themes. Axial coding was then use to put the data together in a new way (Strauss & Corbin, 1990). Themes were regrouped and linked into each other in a rational manner. Finally, selective coding took place by selecting primary themes and relating it to other themes (Strauss & Corbin, 1990). The same process was used to code the other three interview transcripts.

Secondly, within-case data analysis was performed (Eisenhardt, 1989; Yin, 2003). This included identifying and analysing the pattern of data within each case. Eisenhardt (1989) recommends constructing an array or display of the data to become intimately familiar with each case as a stand-alone entity. This allows the unique patterns of each case to emerge before generalisations across cases are made (Eisenhardt, 1989). By keeping the initial conceptual framework (figure 1) in mind, the researcher drew a mind-map for each of the cases, displaying the themes identified during the coding process. The researcher then attempted to identify and analyse the patterns among the themes. To safeguard against the analysis being driven by the conceptual framework, the researcher discussed her thinking with another researcher. Furthermore, coded data representative of the themes and patterns were tabulated (Voss, Tsikriktsis & Frohlich, 2002).

Thirdly, analysis was continued by searching for cross-case patterns (Eisenhardt, 1989; Yin, 2003). Vos *et al*. (2002) advocate that the systematic search for cross-case patterns is a key step in case study research. It is also essential for enhancing the analytical generalisability of conclusions drawn from cases (Vos *et al*., 2002). Analytical generalisation is a method in which a

previously developed theory is used as a template with which to compare the empirical results of the case study (Rowley, 2002). Rowley (2002) states that if two or more cases are shown to support the same theory, replication can be claimed. The method used to search for cross-case patterns comprised of constructing another mind map of the summarised case studies, sequentially selecting identified themes and searching for similarities and differences between the cases (Vos *et al*., 2002).

Lastly, the researcher referred to existing literature that supports or conflicts the constructed themes. In this regard, Vos *et al*. (2002) advocate that research must be built on existing theory and that it is important to ask what is similar, what is different and why.

Although the above description of the data analysis process is very structured, the analysis of case study data and the data gathering was done in an iterative manner. Yin (2003) explains that while the data are being gathered, they are also being evaluated to some extent. Furthermore, with each new set of interview data that was coded and analysed, either new themes emerged or it was decided appropriate to change the name of a theme. Throughout the analysing process the data, themes and patterns were continuously being compared, contrasted and summarised upon which the researcher could draw conclusions. As the contextuality of case data is an essential foundation for analysis (Aaltio & Heilman, 2009), the researcher endeavored to analyse the case data in context.

Strategies employed to ensure quality data

A number of methods were used to ensure the integrity of the research data and to enhance the quality of the study. Firstly, triangulation during data collection by means of interviewing various participants on the same research topic helped to establish some credibility. Furthermore, the credibility of the research findings was enhanced by using theoretical triangulation (Kelly, 2006; Smit, 1996; Van der Riet & Durrheim, 2006). Findings were checked against existing literature, taking note of similarities and contradictions. Respondent validation was obtained by member checking. The transcribed interviews and research findings were sent to the participants and they were asked to check or comment on it (Lincoln & Guba, 1985; Maykut & Morehouse, 1994;

Seale, 1999). All the participants agreed that the transcribed interviews and the research findings portrayed an accurate account of what was communicated during the interviews.

Secondly, the researcher used purposive sampling and tried to provide a detailed description of the case study data and the research context in order to allow for the transferability of the findings (Hirschman, 1986; Van der Riet & Durrheim, 2006; Yin, 2003).

To ensure data dependability, it is recommended to use overlapping methods of data collection or stepwise replication (Guba, 1981). Baxter and Jack (2008) also recommend having multiple researchers independently code a set of data and then reach a consensus on the emerging themes. The researcher used a stepwise replication of the data collection method and tried to provide rich and detailed descriptions of how certain opinions were rooted in and developed out of the interviews (Maykut & Morehouse, 1994; Van der Riet & Durrheim, 2006). The use of multiple researchers was somewhat restricted.

Finally, confirmability was achieved to some extent by the researcher's conclusions being supported by the data and the presentation of sufficient raw data (in the form of extracts) to allow the reader to interrogate the interpretations that were made (Hirschman, 1986).

Another way in which the dependability and confirmability of the research findings can be checked is by means of an audit or evidence trail (Ackerman, Admiraal, Brekelmans & Oost, 2008; Maykut & Morehouse, 1994; Yin, 2003). In this research study, the audit trail consisted of the research proposal, the interview schedule, the consent form, the digital voice-recorded files, the interview transcripts and transcripts in which phrases were coded. It also included a document listing the codes and related phrases, mind-maps illustrating the categorisation of the themes and the final reporting of the findings in the form of this research article. Those interested in conducting an audit trail are invited to e-mail such a request to the researcher.

Reporting

Although "… there exists no one correct way to report the case study data" (Baxter & Jack, 2008, p. 555), Yin (2003) recommends that when multiple cases are used, a typical reporting format is

to provide a detailed description of each case and then present the themes within each case followed by cross-case themes.

The researcher provided the within-case themes and the cross-case themes identified. Various researchers articulate the usefulness of raw data, in quotations (Aaltio & Heilmann, 2009; Cordon & Sainsbury, 2005; Patton, 1990) and this urged the researcher to use direct quotations representative of the identified themes to support the reported findings. The researcher also illustrated the final conceptual framework that comprises of initial and newly added constructs as well as the relationships that seem to exist among them. Furthermore, the findings are also reported in the form of comments on the derived themes as well as a discussion.

Ethical considerations

To ensure that research activities are performed ethically is an important part of any research study (Bak, 2004; Wassenaar, 2006). No harm should come to participants as a result of the research activities. Clear guidelines for performing ethical research activities are set out in the *Ethical code of professional conduct* (HPCSA, 2002). Amongst others, this includes obtaining informed consent from participants for participating in and the recording of research activities as well as maintaining the confidentiality of participants' identities. Furthermore, Wassenaar (2006) urges researchers to use confidentiality agreements and reminds researchers to treat participants with the utmost respect.

Prior to the interviews, participants were given consent forms to complete that included giving their full consent for voluntary participation, the use of the information for research purposes and follow-up interviewing, should there be a need for it. Participants were also assured of the confidentiality of their identities. Hence the participants are not named, but labeled instead as participant A, B, C and D. The participants were informed about the purpose of the study and their right to withdraw at any stage of the study. As the researcher had a responsibility to provide some support for participants (Wassenaar, 2006), they were also given the contact details of the researcher and the research supervisors in case they had any more questions regarding the research.

FINDINGS

All the participating industrial psychologists were extremely forthcoming about their use of psychological instruments in their forensic work. Amongst other things, they were eager to convey their opinions of the purposes for which psychological instruments should be used as well as their experiences of what is happening in the industry in terms of the psychological assessment of claimants. Throughout the interviews the industrial psychologists recounted examples of different loss of income claims to describe the purposes for which they used psychological instruments.

The findings of the research are presented in the following format:

- Within-case study themes are briefly mentioned and supported by verbatim responses.
- Cross-case study themes are given, explained, supported by verbatim responses and commented upon.
- The final conceptual framework is illustrated and explained.
- A discussion of the findings, which includes some integration of existing literature, is presented.

Within-case study themes

Case study 1 (Interview with participant A): Themes that emerged from this case study mostly centered around the value that the use of psychological instruments provide in the event of personal information or professional opinions from specialists not being available ("*… I am saying you can use tests* [psychological instruments] *if it is adding value … when it is needed and not provided by the clinical or educational psychologists' reports"*); the objectivity that must be maintained by assessing claimants whether working for the claimant or the defendant attorney ("*I have got a philosophy … to be absolutely objective that is why I work on both sides"*); overtesting ("*… just measure for the sake of measuring"*) seems to be a product of a lack of objectivity; purposes for using psychological instruments mostly included making future career projections ("*… I can look at some careers within his area of interest and then make a*

projection"); and the need for a work related 360° instrument to enhance career predictions made (*"… a scientific questionnaire that we can use on a 360° basis … on the real world impact in the work* [work place]*"*).

Case study 2 (Interview with participant B): Themes identified included the use of psychological instruments to verify and complement other information sources (*"… to see whether psychometrics is going to add any information complementary to our process"*); a firm opinion that a *"… one size fits all approach"* to assess all claimants is not applicable in all cases; overtesting by other psychologists was perceived to be related to an economical incentive (*"… people* [other psychologists] *have a one size fits all approach testing everybody as part of the evaluation process … I feel that people try to increase their billing costs or the invoice charged"*); overtesting leads to feelings of anger on the part of the industrial psychologist (*"… it makes me angry … I have quite negative feelings about people being overtested"*); and there is need for an instrument that can assess non-verbal cognitive potential of semi-skilled people (*"… non-verbal tests for let's say semi-skilled type of people"*).

Case study 3 (Interview with participant C): Themes that emerged from the case study data included psychological instruments used to provide information not obtained by other professionals (*"… sometimes if the clinical psychologist or the educational psychologist did not do cognitive testing we could do cognitive tests to give us an indication whether the individual is capable of embarking on tertiary education"*); an opinion that no overtesting is apparent among industrial psychologists, but in other psychological fields (*"Not from an industrial psychology perspective, … I do however find that the clinical psychologists and the educational psychologists they sometimes to my mind overtest"*); overtesting is associated with test-retest reliability (*"… normally there is an educational psychologist for the claimant and one for the defendant and they often test I see … within a month of each other so the whole issue of test-retest becomes a bit of a problem the question of whether there was some learning from the first testing scenario … I'm not sure to what extent I can rely on the findings of the second testing"*); personality instruments are used to confirm suspected malingering (*"… there is quite a bit of malingering going on … and we often find that when you subject an individual for instance a personality instrument it either confirms certain personality traits which you pick up during the interview or it raises concerns about some of the issues"*); an opinion that other industrial

psychologists sometimes assess outside their field, assessing depression (contradiction to earlier theme) (*"… the only thing that bugs me a little bit is when an industrial psychologist do tests for depression … depression falls outside of our field of expertise"*); and instrument is needed to assess malingering – personality inventories were not developed for this purpose (*"Malingering is a major issue and that would be extremely valuable if we could get a test like that"*).

Case study 4 (Interview with participant D): Themes inferred from the case study data included psychological instrument results are used to identify discrepancies between the different informational resources (*"… if the collateral information differs from the personality profile information … I will make mention of the discrepancy that seems to exist"*); the decision to use a psychological instrument is influenced by situational factors specific to the claim at hand (*"… it depends on the situation"*); an opinion of no overtesting among industrial psychologists (*"But in general I don't feel that the industrials* [industrial psychologists] *are the people that are overtesting"*); overtesting is not associated with administering the instrument unnecessarily, but with how the results are used in the psycho-legal report (*"… they* [other industrial psychologists] *test and they just reflect the test results and the norms they don't explain* [any of it]*"*); lack of information at the time of consultation is a possible reason for overtesting (*" … I keep the results just in case a brain injury is diagnosed later … then I can use the test results to support my professional opinion"*); instrument results obtained and reflected by one professional, provides another perspective for other professionals involved (*"… sometimes it is also good maybe just to read the test results it just gives you another view of the client"*); and *"… there is no standard recipe"* - the purpose for using an instrument depends on situational circumstances and the type of information that can be elicited from a psychological instrument (*"… each case has its own merit"*).

Cross-case study themes

The above mentioned within-case themes were compared with one another. Similarities and differences between the cases were identified. Overall, the cross-case analyses highlighted (1) the value versus the futility of using psychological instruments, (2) the situational applicability of

psychological instruments, and (3) the psychological instruments found wanting as the three primary themes. The participants also confirmed the appropriateness of the identified themes.

Primary theme 1: The value versus the futility of using psychological instruments

This theme partly emerged because of a similarity among the participants as well as a contrast between their convictions and what is actually being done in the forensic context.

All the participants were of the opinion that psychological instruments should be used for the purpose of adding value to the process of quantifying a loss of income claim.

> … *I am saying you can use tests* [psychological instruments] *if it is adding value* … (Participant A)

> … *if it* [use of a psychological instrument] *is appropriate it really adds value to our assessments* … (Participant B)

> … *I would like that if I do some testing then I want to integrate it in my report and add value to the assessment or to the report or to the quantification of the claim* … (Participant D)

Adding value by means of using psychological instruments is described in terms of the instrument confirming or disconfirming collateral information regarding the claimant or adding new information that complements the existing information.

> … *there was a hundred percent correlation on the reported information and what I got out of the test* … (Participant A)

> … *collateral information I find gives you the most information … then I would say psychometric testing which* [either] *supports it or doesn't* ... (Participant D)

> … *we determine the need for psychometrics in the interview session and this is basically done in terms of trying to see whether psychometrics is going to add any information complementary to our process* … (Participant B)

The participating industrial psychologists differed in their opinions regarding overtesting in the industry. Participant A and B agreed that overtesting is apparent among industrial psychologists practising forensics. These participants do not comprehend the purpose of using psychological instruments if the instrument results are only reflected in psycho-legal reports without adding any value to the quantification of the claim.

> … *they* [other industrial psychologists] *just measure* [assess] *for the sake of measuring, why?* (Participant A)

> … *in the industrial psychology environment we find sometimes that people have a one size fits all approach testing* [assessing] *everybody as part of the evaluation process and then in the end the testing results* [assessment results] *are not used at all* … (Participant B)

Participants C and D denied that overtesting is typical among industrial psychologists practicing forensics. However, both these participants seem to associate overtesting with something other than its textbook definition. Overtesting occurs when psychologists administer psychological instruments that are irrelevant to a case (Naylor *et al*. 2009). Participant C only associated it with test-retest reliability – the claimant being tested too much.

> … *I see fairly regularly they often test within a month of each other* [the two psychologists acting on behalf of the claimant and defendant attorneys] *so the whole issue of test-retest uhm … becomes a bit of a problem …* (Participant C)

Participant D seems to associate overtesting with administering an instrument to a claimant and merely reflecting the results in the psycho-legal report, in-stead of integrating it with other information. However, this participant touched on an explanation for this occurrence. It seems that in some cases, not enough information on the claim is available at the time of consultation. The industrial psychologist is then obligated to a certain extent to administer an instrument, just in case new developments come forth.

> … *And sometime I do test* [assess] *because I am not sure if I am going to use that information … all the other medico-legal reports have not yet been received … sometimes a case develops … it was purely an orthopedic injury … then a brain injury is diagnosed* … (Participant D)

Participant D does however not advocate testing for the sake of testing, seemingly because of the time and costs involved in using psychological instruments.

> … *sometimes when they* [other industrial psychologists] *reflect the test results* [assessment results] *in the report it is very … artificial …* (Participant D)

> … *testing* [psychological assessment] *is expensive it takes time I mean people* [legal experts] *don't always understand it so just to test for the sake of testing I don't do that …* (Participant D)

These extracts aptly demonstrate that all participating industrial psychologists advocate the use of psychological instruments for the purpose of adding value to the information of the claim. However, some of them perceive the use of psychological instruments by other industrial psychologists as futile implying that it is used for no purpose at all when instrument results are merely reflected in psycho-legal reports. Furthermore, the individual reality of each industrial psychologist regarding the existence of overtesting seems dependent on the meaning they attach to the term overtesting.

Primary theme 2: The situational applicability of psychological instruments

All four industrial psychologists advocated the situational applicability of psychological instruments. This theme emerged by the industrial psychologists intimating that psychological instruments are not needed in each and every claim but that their use and purpose depend on the circumstances surrounding the claim and factors such as the claimant's age and work history.

> *... there are particular cases where you will use it* [psychological instruments] … *it depends on from individual to individual …* (Participant A)

> … *psychological testing* [assessment] *from the industrial psychological perspective is not necessarily needed in each and every case …* (Participant C)

> … *it really depends on a lot of factors not only one and that will determine what tests* [instruments] *you use how many tests you use and if you test or don't test … each case*

has its own merit, you know each case you must handle on its merit, see what is needed what is not needed … (Participant D)

… it depends on things like the age of the client … (Participant C)

… if I do have a client he is 58 years old he has been working for Spoornet for 50 years there is no benefit to test him what am I going to test? (Participant D)

From these extracts it can be inferred that the purpose of using a psychological instrument is not only influenced by factors relating to the instrument (its duration and cost), but also influenced by factors relating to the circumstances of the claim such as the people and organisations involved. This supports the idea that the purpose for using a specific psychological instrument to quantify a specific loss of income claim, is influenced by the factors (people and organisations) involved in that claim. This gives a circular impression of the pattern or relationship of these constructs (see figure 2).

The participants cited examples of different claims to explain the specific purposes for which they use various types of psychological instruments. These specific purposes are presented as sub-themes.

- **Testing for trainability**

Participants B, C and D seem to use cognitive psychological tests such as the *Learning Potential Computerised Adaptive Test* (LPCAT) and the *Graduate and General Reasoning Test batteries* (GRT1 & GRT2) to determine a claimant's trainability. It seems especially important to assess trainability after an accident or incident has occurred in order to predict whether the claimant will be able to complete his or her schooling, embark on further education or be able to be re-trained in the event of him or her having to make a career change.

… cognitive tests to give us an indication whether the individual is capable of embarking on tertiary education or whether the individual will complete his or her schooling … (Participant C)

… they [claimants] *tell me they want to go and further their studies I then do a learning ability assessment to see you know what is the person's ability …* (Participant D)

… we would like to see if the person is still trainable for instance and if so at what level? (Participant B)

… cognitive tests only when there is a necessity that the individual really be trained in a different career, does the individual have the ability to be retrained or re-educated then we would use cognitive instruments … (Participant C)

- **Assessing emotional stability**

Participants A, B and D conveyed that in some cases it is necessary to assess a claimant's emotional stability after an accident has occurred as emotional difficulties might affect the person's work performance or retirement age. This is especially important if the claimant has been transferred to another position which does not quite fit his or her personality. Instruments like the *Bar-On Emotional Quotient Inventory* (Bar-On EQi) and the *Occupational Stress Inventory – Revised* (OSI-R) are used in such cases.

… I measured [assessed] *frustration in the job situation … in order to increase my or his contingency … I used it* [Occupational Stress Inventory - Revised] *and it absolutely confirmed his* [claimant's] *frustration and how terrible it* [the new job position] *is for him and that he will not …* [perform well or retire late in his career] *… he was 43 years old he will be off his rocket because of that …* (Participant A)

… we find the EQ-i quite helpful in terms of coping with the current [work] *situation post-accident especially if the person has developed some difficulties after the accident then it is quite a good idea to make a measure* [to assess] *of the current situation and the current coping ability of the person and that's where the EQ-i helps us quite well …* (Participant B)

… sometimes you do need to know what is the person's emotional stability or instability etcetera and then you will select a test to do that … (Participant D)

- **Projecting career prospects**

Participants B and D elaborated on the use of interest inventories. In claims where the claimant (especially if it is a child) actually had no idea of the career he or she would embark on prior to the accident or in claims where career changes are necessary, interest inventories are applied to determine career interests and project career prospects.

> … *if the child is now in grade 9 he is not sure about his career … you can do some psychometric testing* [assessment] *in terms of his interest profile* … (Participant D)

> … *We also use sometimes psychometrics to determine career interests especially if a person is very unsure of their own career a person was still thinking about what he or she wanted to do straight after school when the accident occurred so then it is very difficult to determine probable career direction – where the person would have been had the accident not occurred so in that sense then we make use of for instance an Occupational Interest Profile type of test* [instrument] *to give input regarding career interests* … (Participant B)

> … *he might need to have a career change, so then I might look at … in what other fields can you utilize a person so then you might look at an interest profile* … (Participant D)

> … *the Occupational Interest Profile obviously when we want to find out what are* [the] *alternative career directions for this person* [claimant] … (Participant B)

> … *what other career options may be available to the client and where does his interests lie in terms of occupation* … (Participant B)

- **Assessing personality**

Participants A, C and D often use personality inventories in combination with interest inventories in order to predict a person-job-fit.

> … *there was another case … one of those kids who had the accident in his matric year … there is actually no career history … but he is now in a call centre but he is thinking of this and this when I had the interview* … [I asked myself] *am I going to use a generic projection of his career or must I see if I can be more specific … then I requested that he*

must do the Occupational Interest Profile and a personality questionnaire … (Participant A)

… I do get people that don't know what career they would like to follow you know then you will typically do the OPP [*Occupational Personality Profile*] *and the interest profile* [*Occupational Interest Profile*] … (Participant D)

… from a personality perspective … to get a fit between the personality and the career interests … (Participant C)

In some cases, participant B uses personality inventories to get an idea of the claimant's overall personality profile.

… the Occupational Personality Profile the OPP sometimes we use that generally just to get a sense of coherent personality structure to see if this person is okay overall … (Participant B)

The above mentioned purposes for using specific types of psychological instruments might seem somewhat obvious and not that different to what is described in literature (without considering contextual related factors). However, the apparent existence of overtesting in the forensic industry seems to indicate that the purposes are not that well known amongst industrial psychologists.

Primary theme 3: Psychological instruments found wanting

Participants A and B expressed extremely negative opinions about the psychological instruments currently available in South Africa. They feel that some of the available psychological instruments are inadequate to be used in their forensic evaluation process.

[Participant expresses a facial impression of concern]*… if I look at the industrial psychological tests of South Africa … I think they are pathetic in general … I don't think at this stage what is available is adding value …* (Participant A)

> [Participant expresses a facial impression of frustration]… *I've seen some tests but then of course its once again American or UK developed tests which are not well standardised for South African purposes so we don't use them* … (Participant B)

Integrated process notes were used to infer the apparent negative opinion about psychological instruments available in South Africa. From these quotations it can also be inferred that the purpose of using a specific psychological instrument is influenced by internal factors of the instrument such as its technical properties.

All the participants made recommendations and expressed the need for the development of specific psychological instruments. There seems to be a need to develop psychological instruments that can assess malingering, the non-verbal cognitive potential of people with no education and a 360° instrument that would be able to determine the work functioning of a claimant who had sustained a subtle brain injury.

> [Participant frowns] *Malingering is a major issue and that would* [be] *extremely valuable if we could get a test like that … In a region of 30 to 40% of the cases … you will find that there is an honesty problem* … (Participant C)

> [Participant expresses with a serious facial impression]… *to assess malingering will be great … that will be a very valuable thing, because what we find is that you know* [I've] *been involved in matters were the guys lie … I think people do take chances … it's about money they are going to get money … I think malingering is definitely a test that could be very valuable* … (Participant D)

> … *maybe there is a gap in the marketplace for a test* [instrument] *of non-verbal cognitive potential that a person with no education may also be able to do* … (Participant B)

> … *when someone has got this subtle brain injury frontal lobe or whatever ... because of an accident and on face value it's not that bad the person is still coping … in the work situation … what I would like to do to make your case water tight at this stage I do spend a lot of time doing interviews of the people within the family and in the work situation and I must say that, I think I have got a 90+ success with my collateral that I then combine with what the neuros* [neuro-psychologists] *are saying what is happening in the world the*

> *real world ... but surely there is some mental processes for a foreman for a middle manager for a senior manager, if we can develop some kind of structured questionnaire on the real world impact in the work that we will be able to relate back to* [work] *functioning,… this is problem solving, this is speed, concentration, that will really help, if you can go out and you say that right ... this particular individual is working in this team I want a 360 and they evaluate him on that …* (Participant A)

From the above extracts it is again apparent that the information needed to be provided by a psychological instrument, is influenced by the specific type of claim at hand and the issues it comprises off. The need for the development of psychological instruments that can provide the above mentioned information implies that existing South African instruments are not applicable for that purpose. The facial expressions of the participants expressed the urgency of the need.

Throughout the development of the various primary themes, the initial conceptual framework (figure 1) also developed with patterns and relationships amongst the major constructs becoming clearer. Figure 2 (see next page) illustrates the final conceptual framework.

Figure 2: Final conceptual framework

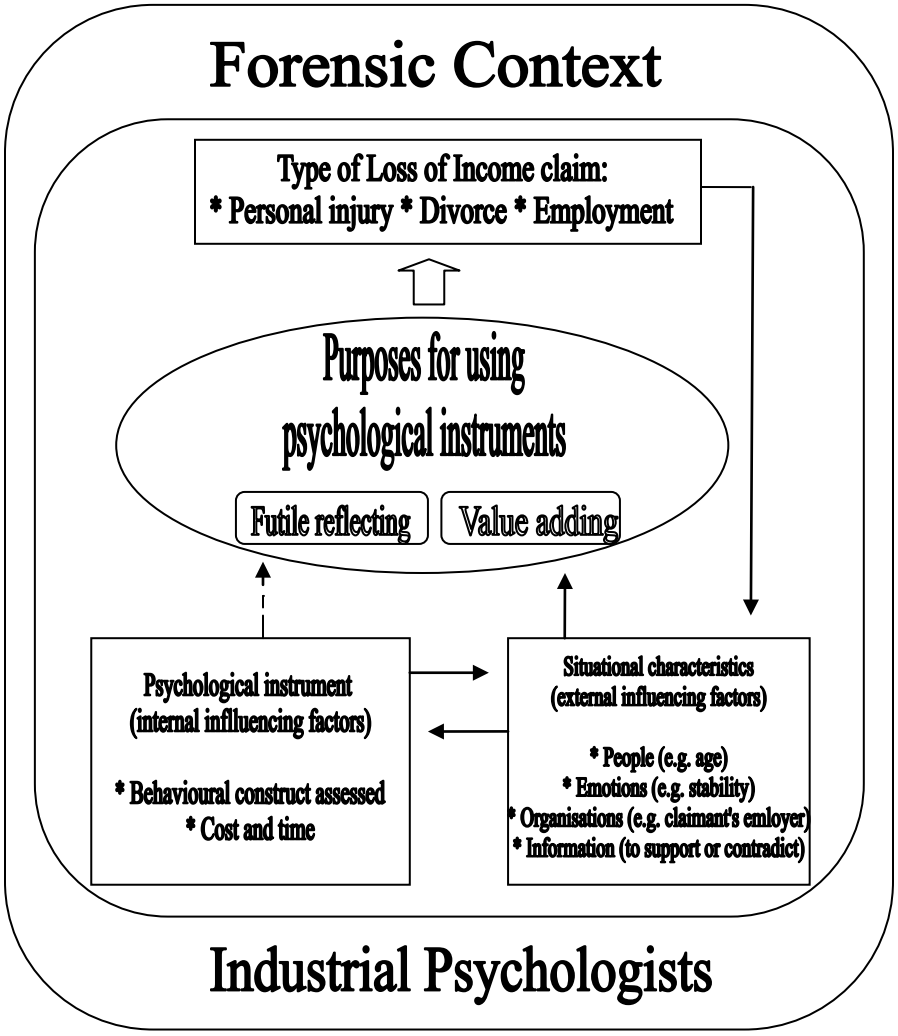


Figure 2 illustrates some of the findings from the exploratory study. In the forensic context in which industrial psychologists operate, the purpose for using psychological instruments are perceived to be either "value adding" (instrument's results are used for a specific purpose) or "futile reflecting" (instrument's results are merely reflected and no apparent purpose exists). The purpose for using a psychological instrument is also influenced by internal factors of the psychological instrument as well as external factors that are the situational characteristics of the specific claim at hand. In figure 2, the solid line indicates the "value adding path", while the indented line represents the "futile reflecting path". From the value adding path, it is clear that

there is a circular or reciprocal relationship between the context (represented by the specific type of claim involved in the matter) and its situational characteristics (external influencing factors) as well as between the situational characteristics and the psychological instrument's internal factors. In contrast with this, the futile reflecting path originates seemingly from nowhere and does not have a relationship with the situational characteristics of the claim at hand.

DISCUSSION

As in all qualitative research, the analysis and discussions are not cast in stone and are therefore subject to multiple interpretations. The main objectives of this study were to explore the purposes for which industrial psychologists use psychological instruments in loss of income claims, what psychological instruments industrial psychologists use in loss of income claims and what kind of information is needed in the forensic context, which is not currently available by means of existing psychological assessment. Additional reasons for conducting the research were to build on existing literature relating to the use of psychological instruments in the forensic context, to inform current and prospective industrial psychologists of the typical practices of their peers, to identify the limitations of psychological instruments currently available and to promote the development of new instruments to elicit information required in the forensic context.

By exploring purpose-related themes, the study focuses on the discrepancies between what is happening in practice and what is recommended, as well as the discrepancies between the psychological instruments available and those for which there is an urgent need.

Regarding the question of the purposes for which industrial psychologists use psychological instruments in loss of income claims, it was evident that the participants' overall opinion was that the use of a psychological instrument should add value to the quantification of the loss of income claim. This is done by either supporting collateral information such as medical, school, financial and employment records and information obtained from family members, friends and employers or by providing new information. This finding concurs with what is stated in literature. Gregory (2007) and Naylor *et al.* (2009) both contend that applying psychological instruments is often a valuable source of information that can lend support to conclusions based on other information resources. Furthermore, this supportive function of psychological instruments seems highly

appropriate in the light of Rubenzer's (2005) word of caution that in forensic assessment, virtually no source of information should be assumed reliable. In the forensic context it is therefore recommended that different informational resources should be obtained and used to confirm one another's general reliability or to draw attention to inconsistencies that may exist.

It was further found that overtesting in the forensic context, is a reality for two of the participants. It is interesting to note that the other two participants denied this occurrence, but did admit to not understanding the purpose for which their colleagues in the field of industrial psychology sometimes use psychological instruments. In these situations, this could imply that the psychological instrument's relevance to the claim is questionable and that a psychological instrument was sometimes used for no reason. In this regard, Naylor *et al*. (2009, p. 37) state that "[O]vertesting is the term used when psychologists administer instruments that are irrelevant to a case ...".Given this textbook definition, there seems to be no doubt that there is some overtesting in the forensic context. However, it should be mentioned that the perception of this occurrence actually being present seem to be influenced by the apparent meaning the participants associated with the term overtesting.

Since different types of psychological instruments are designed to assess different behavioural constructs or attributes (Foxcroft & Roodt, 2001; Gregory, 2007; Murphy & Davidshofer, 2001), it was also confirmed that different psychological instruments are more applicable to use for specific purposes. Other characteristics of psychological instruments that seem to influence the purpose for using an instrument was the time and cost of administering the instrument. In this regard, Gregory (2007) advocates that using psychological instruments can be time-consuming and costly.

By means of exploring the purposes for using psychological instruments used by industrial psychologists as well as by asking to elaborate on the instruments used, some specific instruments could be identified. This in turn also allowed for further exploration of purposes associated with its use.

Cognitive tests such as the *Learning Potential Computerised Adaptive Test* (LPCAT), the *Graduate and General Reasoning Test Batteries* (GRT1 & GRT2), the *Critical Reasoning Test Battery* (CRTB), the *Wechsler Adult Intelligence Scale-Revised* (WAIS-R) and the *Raven*

Progressive Matrices (RPM) are mainly used to determine a claimant's post-accident or -incident trainability or residual cognitive capacity. The test results are then used to make a case for or against the claimant's ability to complete schooling, embark on further education or be re-trained if a career change is deemed necessary.

Instruments of emotional coping are used to determine whether the claimant will cope emotionally in his or her current or future work environment. Instruments used include the *Occupational Stress Inventory Revised Edition* (OSI-R) and the *Bar-On Emotional Quotient Inventory* (Bar-On EQi).

Career inventories are used for claimants who were unsure of the career they wished to pursue prior to the accident. The industrial psychologist then uses these inventory results to predict the probable career the claimant would have followed and base the quantification of the claim on it. These types of instruments are also used in the event that a claimant, who was in a specific occupation prior to the accident, is now forced to consider an alternative career on account of accident-related injuries. The results are then used to form an opinion about the claimant's loss of income since he or she could possibly be forced to enter a lower-paying occupation. The two interest inventories or questionnaires that were mentioned were the *Occupational Interest Profile* (OIP) and the *South African Vocational Interest Inventory* (SAVII).

The personality instruments used include the *Occupational Personality Profile* (OPP), *Fifteen Factor Questionnaire Plus* (15FQ Plus), the *Sixteen Personality Factor Questionnaire* (16PF), the *Work Personality Index* (WPI) and the *Thematic Apperception Test* (TAT). These personality instruments are sometimes either used in combination with interest inventories in order to predict a person-job-fit or to form an idea of the claimant's overall personality profile in support of collateral information.

The purposes for using the different types of psychological instrument, as mentioned above, and the specific psychological instruments named, are somewhat different from those articulated in the mentioned literature. This is because most of the literature only mentioned the purposes for psychological instruments as used by clinical psychologists and psychiatrists. Since the scope of the industrial psychologist's work is markedly different from that of a clinical psychologist, the differences are to be expected. This finding is similar to what Piotrowski (2007) found when he

compared four studies on the instrument usage patterns of forensic practitioners including forensic psychologists, psychiatrists, counselors and social workers. Piotrowski (2007) concluded that instruments used for a specific purpose may vary on the basis of the professional identity of the tester or on a particular setting. This also provides theoretical support for the finding that the purpose for using a psychological instrument appears to be fairly situational. The circumstances surrounding the claim, such as the claimant's age and work history, influence the need for applying a particular psychological instrument.

The psychological instruments found wanting were the third theme identified in the analysis. Overall, participants came across as frustrated by the quality of the psychological instruments available and applicable to the South African population. In this regard, Pretorius *et al.* (2009) also argue that existing cognitive tests are not applicable to all cultures and contexts in South Africa. The reasons for this argument are that cultural, language and educational differences could contribute to lower validity of the assessment (Pretorius *et al*., 2009). Although Pretorius *et al.*'s (2009) study focuses primarily on the issue of using existing cognitive tests on children, these factors can also contribute to lower validity of other types of psychological instruments.

The participants also eagerly described information that they require to express their professional opinions about a loss of income claim being "water tight". They also expressed an urgent need for the development of instruments that would be able to elicit that kind of information. There is currently no instrument to assess malingering. Participants perceived many claimants to be dishonest when asked about career prospects prior to the accident and their psychological wellbeing and functioning after an accident or incident. According to Rubenzer (2005), the exact rate of malingering among personal injury claimants is not known, but that published estimates range from 20 to 59%. Participant C's experience of malingering in the industry is somewhat similar. Participant C stated that in approximately 30 to 40% of the cases, some dishonesty is involved. Monetary reward is perceived as one possible reason for claimants' malingering. Rubenzer (2005) emphasises that specialised psychological assessment is one of the sources necessary to determine the possibility of feigning. The participants' need for such an instrument was clear.

Some participants also mentioned the urgent need for an instrument to assess the non-verbal cognitive potential of people with no education and a 360° instrument that would be able to determine the work functioning of a claimant who had sustained a subtle brain injury.

From the findings (as partly illustrated by figure 2) it can be concluded that the purposes for using psychological instruments are perceived to be either “value adding” or “futile reflecting”. This means that the purpose for using psychological instruments is to add value to the quantification of a claim by confirming existing information and/or providing new information. Otherwise, the use of a psychological instrument is perceived as futile. No purpose is served by merely reporting psychological instrument results in psycho-legal reports.

Furthermore, it can be concluded that the purpose of using a psychological instrument is influenced by internal factors of the psychological instrument such as the behavioural construct the instrument assesses and the administration related characteristics of the instrument such as time and cost. The purposes for using psychological instruments are also influenced by external factors comprising the situational characteristics of the loss of income claim (claimant’s age, apparent emotional stability, employer and work history). It is thus evident that the purposes for using psychological instruments in loss of income claims are influenced by various contextual related factors. Primary theme 2 elaborates on more specific purposes for using psychological instruments in the forensic context.

Regarding the specific psychological instruments used, it is firstly concluded that industrial psychologists use instruments that are relevant to the specific claim at hand. Secondly, it is concluded that the participating industrial psychologists do not necessarily use the same psychological instruments. Primary theme 2 revealed the specific psychological instruments used and therefore they are not repeated here. Furthermore, it is concluded that the kind of information that is needed by industrial psychologists, but not provided by existing psychological instruments, pertain to malingering, non-verbal cognitive potential and the mental impact of brain injuries on specific work related performance criteria such as work speed and concentration.

From the discussion of the findings, two major challenges that industrial psychologists are called on to deal with in quantifying loss of income claims are identified. Firstly, they tend to work with

other industrial psychologists whose psychological assessment approaches are not clearly understood and could therefore be ethically questionable. Secondly, it is possible that part of the industrial psychologist's opinion on the quantification of a loss of income claim might be based on information that is false because of the claimant malingering.

In light of these challenges it is hoped that this research will inspire more transparent use of psychological instruments in loss of income claims in order to at least diminish overtesting in the industry. Furthermore, those interested in the development of psychological instruments are encouraged to develop or adapt the required psychological instruments. According to Foxcroft and Roodt (2001), there are several reasons for instrument adaptation. Firstly, it allows for greater fairness because language differences can be addressed. Secondly, it is more convenient because it is less costly and time-consuming. Existing instruments have already undergone a process of item-analysis and validation, which makes it the preferred option (Foxcroft & Roodt, 2001). Thirdly, instrument adaptation facilitates comparative studies – both at national and international level. Taking these reasons into account, it might be preferable to employ existing psychological instruments – and adapt them to make them more applicable to and valuable in the South African context.

Limitations and recommendations

The limited amount of literature available on this research topic was regarded as a limitation regarding the literature review. Few research studies that focused on the use of psychological instruments in the forensic context and the purpose of their use could be found. However, this highlighted the significance of one of the objectives of this study, namely to add to this existing body of knowledge.

Four limitations of the empirical research study were identified. Firstly, the sample of participants used may have limited the research results. Although the participating industrial psychologists, mostly worked in the Pretoria area, they did acknowledge that they were involved in forensic work all over South Africa. However, it is possible that the findings of the research are confined to this area. One should consider that other industrial psychologists practising in the same or a different geographical area may have different views and opinions to those expressed

by the participants. Although the literal replication of case studies did make it possible to achieve analytical generalisation to some extent, scientific generalisation was not achieved. This is to be expected from qualitative studies (Rowley, 2002; Vos *et al*., 2002; Yin, 2003)

A second limitation of the multiple-case study research was the use of only one type of data source. The credibility of the data and the findings may therefore be lacking to some extent (Patton, 1990; Yin, 2003). The third limitation of the research study was the use of semi-structured interviews as a data-gathering technique. Although the interviews enabled the researcher to explore the purposes for which industrial psychologists use psychological instruments in loss of income claims, the specific psychological instruments used and the information required in the forensic context, the research was extremely time-consuming. Two months were needed to gather, transcribe and analyse all the data. Jones (1985) and Gillham (2000) articulate that data gathering by means of interviews can indeed be very time-consuming.

The final limitation regarding the research study concerns its confirmability. Although the confirmability of the study was achieved to some extent by the researcher's conclusions being supported by the data, the use of multiple researchers or a peer review could have improved it (Bloor, 1997; Marshall & Rossman, 1999; Seale, 1999).

With due consideration of the above limitations, the themes around which the data were organised do answer the research questions and promote the development of the researcher as an aspiring forensic industrial psychologist.

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REFERENCES

Aaltio, I., & Heilmann, P. (2009). Case study as a methodological approach. *Encyclopedia of Case Study Research*. Retrieved January 10, 2011 from http://www.sage-ereference.com.oasis.unisa.ac.za/casestudy/Article_n28.html.

Ackerman, M.J. (1999). *Essentials of forensic psychological assessment*. New York: Wiley.

Ackerman, S., Admiraal, W., Brekelmans, M., & Oost, H. (2008). Auditing quality of social scientific research. *Quality & Quantity, 42*, 257-274.

Archer, R.P., Buffington-Vollum, J.K., Stredny, R.V., & Handel, R.W. (2006). A survey of psychological test use patterns among forensic psychologists. *Journal of Personality Assessment, 87*(1), 84-89.

Bak, N. (2004). *Completing your thesis – A practical guide*. Pretoria: Van Schaik.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report, 13*(4), 544-559.

Bloor, M. (1997). Techniques of validation in qualitative research: A critical commentary. In G. Miller & R. Dingwall (Eds.), *Context and method in qualitative research* (pp. 35-50). London: Sage.

Borum, R., & Grisso, T. (1995). Psychological test use in criminal forensic evaluations. *Professional Psychology: Research and Practice, 26*(5), 465-473.

Botha, P. (2001). Die kwalitatiewe onderhoud as data-insamelingstegniek: Sterk en swak punte [The qualitative interview as a data gathering technique: Strengths and weaknesses]. *Journal of Family Ecology and Consumer Sciences, 29*, 13-19.

Bryant, R.A. (2003). Assessing individuals for compensation. In D. Carson & R. Bull (Eds.), *Handbook of psychology in legal contexts* (2nd ed., pp 89-107). London: Wiley.

Camara, W.J., Nathan, J.S., & Puente, A.E. (2000). Psychological test usage: Implications in professional psychology. *Professional Psychology: Research and Practice, 31*(2), 141-154.

Cavaye, A.L.M. (1996). Case study research: A Multi-faceted research approach for information systems. *Information Systems Journal, 6*, 227-242.

Cordon, A., & Sainsbury, R. (2005). *Research participants' views on use of verbatim quotations*. Retrieved September 16, 2010 from http://www.york.ac.uk /inst/spru/pubs/ sstreps.html

Crabtree, B., & Miller, W. (1999). *Doing qualitative research* (2nd ed.). London: Sage.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative and mixed methods approach*. London: Sage.

Darke, P., Shanks, G., & Broadbent, M. (1998). Successfully completing case study research: Combining rigour, relevance, and pragmatism. *Information Systems Journal, 8*, 273-289.

Davies, P. (2006). Informed consent. In V. Jupp (Ed), *Sage dictionary for social research methods* (pp. 149-150). London: Sage.

Durrheim, K. (2006). Research design. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 33-59). Cape Town: University of Cape Town Press.

Durrheim, K., & Painter, D. (2006). Collecting quantitative data: sampling and measuring. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 131-159). Cape Town: University of Cape Town Press.

Eisenhardt, K.M. (1989). Building theories from case study research. *Academy of Management Review, 14*, 532-550.

Ely, M. (1991). *Doing qualitative research: Circles within circles*. London: The Falmer Press.

Foxcroft, C., & Roodt, G. (2001). *An introduction to psychological assessment in the South African context*. Cape Town: Oxford University Press.

Gillham, B. (2000). *The research interview*. New York: Continuum.

Given, L. (2006). Qualitative research in evidence-based practice: A valuable partnership. *Library Hi Tech, 24*(3), 376-386.

Gregory, R.J. (2007). *Psychological testing: History, principles and applications*. Cape Town: Pearson Education.

Guba, E.G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication & Technology Journal, 29*(2), 75-91.

Harling, K. (2002, July). *An overview of case study*. Paper presented at a workshop of the American Agricultural Economics Association, Long Beach, California.

Health Professions Council of South Africa (2002). *Ethical code of professional conduct.* Retrieved December 15, 2009 from http://www.hpcsa.co.za.

Henning, E., Van Rensburg, W., & Smit, B. (2004). *Finding your way in qualitative research*. Pretoria: Van Schaik.

Hirschman, E.C. (1986). Humanistic inquiry in marketing research: Philosophy, method and criteria. *Journal of Marketing Research, 23*(3), 237-249.

Irvine, H., & Gaffikin, M. (2006). Getting in, getting on and getting out: reflections on a qualitative research project. *Accounting, Auditing and Accountability Journal, 19*(1), 115-145.

Jones, S. (1985). *Depth interviewing*. Vermont: Gower.

Kaiser, R.S. (1986). Forensic vocational assessment psychology. In M.I. Kurke & R.G. Meyer (Eds.), *Psychology in product liability and personal injury litigation* (pp. 185-206). Washington: Hemisphere.

Kelly, K. (2006). From encounter to text: Collecting data in qualitative research. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 285-319). Cape Town: University of Cape Town Press.

Kerlinger, F.N., & Lee, H.B. (2000). *Foundations of behavioural research* (4th ed.). New York: CBS.

Kogh, R.J. (2009). *The quantum yearbook*. Port Elizabeth: Van Zyl and Rudd.

Lally, S.J. (2003). What tests are acceptable for use in forensic evaluations? A survey of experts. *Professional Psychology: Research and Practice, 34*, 491-498.

Leedy, P.D., & Ormrod, J.E. (2001). *Practical research: Planning and design* (7th ed.). New Jersey: Prentice Hall

Lewis, D. (2009). Assessment for compensation. In V. Roos & C. Vorster (Eds.), *An introduction to forensic psychology* (2nd ed., pp. 109-118). Potchefstroom: Platinum Press.

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry.* Beverley Hills: Sage.

Louw, D.A., & Allan, A. (1998). A profile of forensic psychologists in South Africa. *South African Journal of Psychology, 28*(4), 234-241.

Lowenstein, L.F. (2002). *The psychological aspects of personal injuries*. Chichester: Barry Rose Law.

Luben, B., Larsen, R.M., & Matarazzo, J.D. (April 1984). Patterns of psychological test usage in the United States: 1935–1982. *American Psychologist*, 451-454.

Marshall, C., & Rossman, G.B. (1999). *Designing qualitative research* (3rd ed.). London: Sage.

May, T. (2001). *Social research: Issues, methods and process* (3rd ed.). Milton Keynes: Open University Press.

Maykut, P., & Morehouse, R. (1994). *Beginning qualitative research – A philosophic and practical guide*. London: Falmer Press.

Melton, G.B., Petrila, J., Poythress, N.G., & Slobogin, C. (1987). *Psychological evaluations for the courts: A handbook for mental health professionals and lawyers.* New York: The Guilford Press.

Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis: An expanded source book* (2nd ed.). Thousand Oaks, CA: Sage.

Miller, J., & Glassner, B. (1997). The “inside” and the “outside”: Finding realities in interviews. In D. Silverman (Ed.), *Qualitative research: Theory, method and practice* (pp 99-112). London: Sage.

Moodie, B. (1992). *Die kwantifisering van derde party versekeringseise: Die rol van die bedryfsielkundige* [The quantifying of third-party insurance claims: The industrial psychologist's role]. Unpublished master's thesis, University of South Africa, Pretoria, South Africa.

Mouton, J., & Marais, H.C. (1994). *Basic concepts in the methodology of the social sciences*. Pretoria: Human Science and Research Council.

Mullen, K.L., & Edens, J.F. (2008). A case law survey of the Personality Assessment Inventory: Examining its role in civil and criminal trials. *Journal of Personality Assessment, 90*(3), 300-303.

Murphy, K.R., & Davidshofer, C.O. (2001). *Psychological testing: Principles and applications* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Naylor, V., Vorster, P., Cronjè, P., & Donaldson, B. (2009). Forensic assessment. In V. Roos & C. Vorster (Eds.), *An introduction to forensic psychology*, (2nd ed., pp. 31-48). Potchefstroom: Platinum Press.

Neuman, W.L. (2000). *Social research methods: Qualitative and quantitative approaches*. Boston: Allyn & Bacon.

Packer, I.K. (2008). Specialized practice in forensic psychology: Opportunities and obstacles. *Professional Psychology: Research and Practice, 39*(2), 245-249.

Patton, M.Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). London: Sage.

Peyrot, M. (1995). Psychological testing and forensic decision making: The properties-in-use of the MMPI. *Social Problems, 42*(4), 574-586.

Piotrowski, C. (2007). Forensic psychological testing as a function of affiliation and organizational setting. *Organizational Development Journal, 25*(1), 94-98.

Pretorius, S., Hansen, Z., Smit, M., Joubert, T., Mostert, S., & Adinolfi, E. (2009). The use of existing measures to test the cognitive functioning of children within the South African context. *New Voices in Psychology, 5*(2), 51-63.

Roos, V., & Vorster, C. (2009). *An introduction to forensic psychology* (2nd ed.). Potchefstroom: Platinum Press.

Rowley, J. (2002). Using case studies in research. *Management Research News, 25*(1), 16-27.

Rubenzer, S. (2005). Malingering psychiatric disorders and cognitive impairment in personal injury settings. Retrieved June 6, 2010 from http://www.steverubenzerphd.com/Malingering-Brain-Damage.php.

Seale, C. (1999). *The quality of qualitative research*. London: Sage.

Searle, J.R. (1995). The construction of social reality. New York: The Free Press.

Shapiro, D.L. (1984). *Psychological evaluation and expert testimony: A practical guide to forensic work*. New York: Van Nostrand Reinold.

Smit, J.A. (1996). Evolving issues for qualitative psychology. In J.T.E. Richardson (Ed.), *Handbook of qualitative research methods for psychology and the social sciences methods* (pp. 189-202). Leicester: British Psychological Society Books.

Society for Industrial and Organisational Psychology of South Africa (2006). *Code of practice for psychological and other similar assessment in the workplace*. Retrieved December 18, 2009 from http://www.pai.org.za.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park: Sage.

Terre Blanche, M., Kelly, K., & Durrheim, K. (2006). Why qualitative research? In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 271-284). Cape Town: University of Cape Town Press.

Theron, A. (2003). Perspectives on general and work behaviour. In Z.C. Bergh & A. Theron (Eds.), *Psychology in the work context* (2nd ed., pp. 3-15). Cape Town: Oxford University Press.

Van der Riet, M., & Durrheim, K. (2006). Putting design into practice: Writing and evaluating research proposals. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in*

practice: Applied methods for the social sciences (2nd ed., pp. 81-111). Cape Town: University of Cape Town Press.

Vorster, C., Cramer, A., & Burke, A. (2009). Forensic psychology in criminal cases. In V. Roos and C. Vorster (Eds.), *An introduction to forensic psychology* (2nd ed., pp. 55-63). Potchefstroom: Platinum Press.

Voss, C., Tsikriktsis, N., & Frohlich, M. (2002). Case research in operations management. *International Journal of Operations & Production Management, 22*(2), 195-219.

Wassenaar, D.R. (2006). Ethical issues in social science research. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 60-79). Cape Town: University of Cape Town Press.

Welman, J.C., & Kruger, S.J. (2003). *Research methodology*. Cape Town: Oxford University Press.

Whittaker, G. (2007). Actuarial involvement in Road Accident Fund claims in South Africa. *International News, 43*, 29-32.

Witt, P.H., & Weitz, S.E. (Spring 2007). Personal injury evaluations in motor vehicle accident cases. *The Journal of Psychiatry & Law, 35*, 3-24.

Yin, R.K. (2003). *Case study research: Design and methods* (3rd ed.). London: Sage.

CHAPTER 4 CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

Chapter 4 contains the conclusions, limitations and recommendations of the research study. The conclusions of this research are formulated on the basis of the literature review and the findings of the empirical study. The limitations of the study are then discussed and recommendations made for future research.

4.1 CONCLUSIONS

The following conclusions are drawn on the basis of the literature review and the empirical research, in accordance with the aims of the research:

4.1.1 Conclusions regarding the literature review

Conclusions will be drawn with specific reference to the aims of the literature review as set out in chapter 1. In the final instance, conclusions regarding the initial conceptual framework are also articulated.

4.1.1.1 First aim: Description of the historical development of forensic psychology

The first aim, namely to describe the historical development of forensic psychology, was achieved in chapter 2 (see 2.1). A number of conclusions were drawn. Firstly, it was concluded that the development of forensic psychology partly originated from society's need to establish rules for dealing fairly with different kinds of conflicts or disputes. The development of rules and standards occurred by means of a trial and error type of approach. Secondly, it was concluded that the development of forensic psychology was mostly due to researchers' interest in the applicability of psychology in law. The argument was also made that the apparent lack of interest on the part of South African forensic psychologists may be responsible for the slow development of forensic psychology in South Africa. In this regard, a somewhat worrisome conclusion was drawn on the basis of the findings of Louw and Allan's (1998) research. These authors (1998) found that those participating psychologists practising in the forensic context do not consider themselves to be experts in a particular field other than forensic psychology. It was concluded that the value of these psychologists' testimony may be

somewhat questionable because of the lack of expertise in other psychology-related fields that may be needed in order to provide an expert opinion.

4.1.1.2 Second aim: Description of psychological instruments and their use in the forensic context

The second aim, namely to describe psychological instruments and their use in the forensic context, was achieved in chapter 2 (see 2.2 - 2.5). Psychological instruments were described in terms of a commonly accepted definition, the aim of the instrument and its characteristics such as the technical requirements that should be met before decisions about people can be based on the results of the instrument. The literature that focuses on the use of psychological instruments in the forensic context revealed that different psychological instruments have different purposes. The researcher concluded that the purposes, for which the different psychological instruments are developed, and their characteristics make them applicable and practical to a greater or lesser extent in a specific forensic context.

Furthermore, the literature review indicated that few research studies have been conducted on the purposes for using psychological instruments in the forensic context. The available studies also do not appear to distinguish between the different types of forensic psychologists used in the samples. It was therefore concluded that further investigation, particularly into the purposes for using psychological instruments in the forensic context, is required. In particular, it was concluded that information should be produced to explain the purposes for which industrial psychologists use psychological instruments in the forensic context.

4.1.1.3 Third aim: Description of the forensic context in which industrial psychologists operate

The third aim, namely to describe the forensic context in which industrial psychologist operate, was achieved in chapter 2 (see 2.6). It was concluded that industrial psychologists practising in the forensic context are mainly involved in civil litigation cases that include claims arising out of personal injuries, divorce actions and employment relationships. Furthermore, the researcher concluded that the nature of the various claims influences the information that is and becomes available throughout the claim, the types of organisations

involved, the people involved in the claim as well as the emotions that are portrayed by claimants and their relatives.

4.1.1.4 Conclusions regarding the initial conceptual framework

Some of the above mentioned conclusions, helped to construct an initial conceptual framework for the empirical study. It was concluded that the empirical study would include industrial psychologists working in the forensic context and that the study would include other constructs such as the purposes for using psychological instruments, internal factors (the psychological instrument's characteristics) and external factors (the people, emotions, organisations and information involved in a specific loss of income claim).

4.1.2 Conclusions regarding the empirical study

Conclusions will be drawn about the use of psychological instruments in the forensic context with specific reference to the findings of the explorative multiple-case study research that was conducted.

From the findings it was concluded that the purposes for using psychological instruments were perceived to be either "value adding" or "futile reflecting". This means that the purpose for using psychological instruments is to add value to the quantification of a claim by confirming existing information and/or providing new information, otherwise the use thereof seemed futile. No purpose is served by merely reporting psychological instrument results in psycho-legal reports. Furthermore, it was concluded that the purposes for using psychological instruments are influenced by internal factors of the psychological instrument such as the behavioural construct the instrument assesses and the administration related characteristics of the instrument such as time and cost. The purposes for using psychological instruments were also concluded to be influenced by external factors comprising the situational characteristics of the loss of income claim such as the claimant's age, apparent emotional stability, work history and employer.

Regarding the specific psychological instruments used it was concluded that industrial psychologists use instruments that are relevant to the specific claim at hand. It was also concluded that the participating industrial psychologists did not necessarily use the same psychological instruments. Psychological instruments used in loss of income claims include the *Bar-On Emotional Quotient Inventory*, the *Critical Reasoning Test Battery*, the *Fifteen Factor Questionnaire Plus*, the *Graduate and General Reasoning Test Batteries*, the *Learning Potential Computerised Adaptive Test*, the *Occupational Interest Profile*, the *Occupational Personality Profile*, the *Occupational Stress Inventory Revised Edition*, the *Raven Progressive Matrices*, the *Sixteen Personality Factor Questionnaire*, the *South African Vocational Interest Inventory*, the *Thematic Apperception Test*. *Wechsler Adult Intelligence Scale-Revised* and the *Work Personality Index.*

Furthermore, it was concluded that the kind of information that is needed by industrial psychologists, but not provided by existing psychological instruments, pertain to malingering, non-verbal cognitive potential and the mental impact of brain injuries on specific work related performance criteria such as work speed and concentration by means of a 360° assessment.

4.1.3 Reflection on the research experience

In reflecting on the research experience, various lessons were learned along the way. The researcher first read extensively on the topic, and then read some more. This was necessary to ascertain what research exists and how others have treated the particular topic in order to determine what additional research is needed (Bak, 2004; Bowen, 2005). Secondly, consulting experts was a crucial activity throughout the research (Bowen, 2005). Research supervisors consistently provided counselling and guidance along the way indicating that every decision that was made in the research process had to be explained (Personal communication, February to October 2010). An additional qualitative researcher was also consulted to advise the researcher on how to make the research process more transparent and rigorous. Thirdly, patience was required in the research process (Bak, 2004). Although the researcher could continue with some of the research activities, obtaining feedback from research supervisors took a fair amount of time because of their hectic work schedules. However, this always turned out to be worth the wait because the research supervisors provided excellent feedback and additional ideas for the research. Fourthly, the researcher

learnt how to analyse the interview data using coding, within-case and across-case analysis (Yin, 2003). This was partly done by means of training sessions with an experienced qualitative researcher and also by reading various books and articles on the method (Baxter & Jack, 2008; Rowley, 2002; Yin, 2003).

Early in the research process, the researcher became aware of the importance of maintaining acceptable standards of scientific inquiry, and the need to address the idea of rigorous data collection and analytic methods (Bak, 2004). This required theoretical triangulation, member checking and the provision of an audit trail. In the fifth instance, giving a detailed account of the methodology was also imperative to enable others to critically evaluate the research process (Bak, 2004). Finally, it was necessary to provide a detailed account of the findings to support the ultimate discussion and arguments put forward (Bak, 2004).

On a more personal note, the dissertation "journey" was a daunting but worthwhile experience that contributed to the researcher becoming an aspiring forensic industrial psychologist. The journey began with several re-writes of the research proposal. The frustration experienced during this process, however, was necessary since it afforded the researcher the opportunity to identify and really understand the conceptual and practical problems of the initial research proposal (Bak, 2004; Bowen, 2005). The researcher also experienced personal development throughout the research process. Interviewing participants enhanced her listening and probing skills. The researcher found it difficult not to voice her personal opinions during the pilot interview. However, this became easier during the other interviews. Probing participants also made it somehow easier to restrain from expressing own opinions. Instead of suggesting answers, the researcher learnt to "probe" for the answers. The researcher also learnt a great deal from the research findings in terms of the use of psychological instruments in the forensic context, which will undoubtedly help her to become a competent forensic industrial psychologist. Writing up the research findings was a fulfilling experience because it gave the researcher a sense of closure in what proved to be a difficult but worthwhile experience (Bak, 2004; Bowen, 2005).

4.2 LIMITATIONS

The limitations for the literature study and the empirical investigations are highlighted below.

4.2.1 Limitations of the literature review

The limited amount of literature on this research topic was described and the scarcity of such studies again realised. While there was plenty of literature on the historical development of forensic psychology and literature defining psychological instruments, there were fewer research studies that focused on the use of psychological instruments in the forensic context and the purpose of their use. Although this was a limitation, it also highlights the significance of one of the objectives of this study, namely to contribute to the development of this body of knowledge.

4.2.2 Limitations of the empirical investigation

The limitations encountered in the empirical investigation are outlined below.

4.2.2.1 Sample used

Although it was originally thought that confining the sample of participants to those industrial psychologists who practised in the Pretoria area would limit the research results, the participants acknowledged that they were in fact involved in forensic work all over South Africa. However, most of their forensic work is based in Pretoria and their perceptions and experiences can possible be confined to this area. One should bear in mind that other industrial psychologists practising in the same or a different geographical area may have different views and opinions to those expressed by the participants.

The empirical study only made use of four case studies and therefore could not achieve scientific generalisation. This is in line with qualitative research (Rowley, 2002; Vos *et al*., 2002; Yin, 2003). However, the empirical study did make use of literal replication and therefore could achieve analytical generalisation to some extent (Rowley 2002; Yin, 2003).

4.2.2.2 The use of only one type of data source

The credibility of case study data may be somewhat lacking. Case study research usually makes use of multiple sources of data such as interviews, documentation, archival records and direct observations. This enhances the data's credibility (Patton, 1990; Yin, 2003). In the research study, interviews were conducted with professionally registered people and the researcher performed member checking by asking participants to judge the themes constructed and the conclusions drawn. Theoretical triangulation was also performed. All this gave some credibility to the conclusions. However, because only one type of data source was used, it can be argued that the conclusions may be somewhat lacking in rigor.

4.2.2.3 The use of interviews as data-gathering technique

A further possible limitation of the research was the use of semi-structured interviews as a data-gathering technique. Researchers articulate that using interviews as data gathering instrument can be very time-consuming (Aaltio & Heilmann, 2009; Gilham, 2000; Jones, 1985). Although the interviews enabled the researcher to explore the purposes for which industrial psychologists use psychological instruments in loss of income claims, the specific psychological instruments used and the information required in the forensic context, the research was extremely time-consuming. Two months were needed to gather, transcribe and analyse all the data.

4.2.2.4 Limitations in confirmability of the study

Although the confirmability of the study was achieved to some extent by the researcher's conclusions being supported by the data, the use of multiple researchers, a peer review or participant researchers could have improved it (Bloor, 1997; Marshall & Rossman, 1999; Seale, 1999). However, the use of any of these was impractical given the constraints of the master's dissertation.

Despite these limitations, the themes around which the data were organised do answer the research questions.

4.3 RECOMMENDATIONS

The following recommendations are made regarding possible future research and the practical implications of this study:

4.3.1 Recommendations for future research

- Future research should focus on industrial psychologists from various geographical areas in order to obviate the possibility of findings being exclusive to a particular area.
- Surveys could be conducted in combination with interviewing, which would add quantitative value to the research.
- To further validate the confirmability of the research findings, researchers are invited to conduct an audit trail by means of using the research proposal, the interview schedule, the consent form, the digital voice-recorded files, the interview transcripts, transcripts in which phrases were coded, a document listing the codes and related phrases, a mind-map illustrating the categorisation of the themes and the final reporting of the findings (in the form of this research article).
- Another recommendation is for further study of this research topic. This would add to existing knowledge in this area of forensic psychology which is so desperately needed by current and aspiring industrial psychologists.

4.3.2 Recommendations for practical applications

- Industrial psychologists are advised to inform their decision of using psychological instruments in loss of income claims by asking whether this would add value to the quantification of the claim. If it does not add value, they should reconsider the use of such instruments in order to diminish overtesting in the forensic context.
- Another and final recommendation is to urge those involved in psychological instrument development and distribution to do just that. They should endeavour to develop the types of psychological instruments that are needed, as described in the findings of this research and those fit for use on the South African population. In considering all other recommendations, this seems to be the most important one that

will effectively assist forensic industrial psychologists to add value to the quantification of loss of income claim.

4.4 CHAPTER SUMMARY

In chapter 4 the conclusions, limitations and recommendations of this study were formulated. The research findings of the literature review and empirical study were assessed against the research aims set out in chapter 1. Furthermore, the conclusions of the empirical study, pertaining to the purposes for which industrial psychologists use psychological instruments in loss of income claims were mentioned. The specific psychological instruments used and the kind of information that is required in the forensic context, were also indicated. An account of research experience was also given. The limitations of the literature review and the empirical study were explained. Finally recommendations were made for possible future research.

REFERENCES

Aaltio, I., & Heilmann, P. (2009). Case study as a methodological approach. *Encyclopedia of Case Study Research*. Retrieved January 10, 2011 from http://www.sage-ereference.com.oasis.unisa.ac.za/casestudy/Article_n28.html.

Ackerman, M.J. (1999). *Essentials of forensic psychological assessment*. New York: Wiley.

Ackerman, S., Admiraal, W., Brekelmans, M., & Oost, H. (2008). Auditing quality of social scientific research. *Quality & Quantity, 42*, 257-274.

Adams & Adams Attorneys. (2008). *R22 million settlement for motor vehicle accident*. Retrieved February 28, 2009 from http://www.adamsadams.com/library.

Allan, A., & Louw, D.A. (2001). Lawyers' perception of psychologists who do forensic work. *South African Journal of Psychology, 31*(2), 12-20.

Archer, R.P., Buffington-Vollum, J.K., Stredny, R.V., & Handel, R.W. (2006). A survey of psychological test use patterns among forensic psychologists. *Journal of Personality Assessment, 87*(1), 84-89.

Bak, N. (2004). *Completing your thesis – A practical guide*. Pretoria: Van Schaik.

Bartol, C.R., & Bartol, A.M. (2004). *Introduction to forensic psychology*. California: Sage.

Baute, P. (2001). Further guidelines for the organizational psychologist preparing for expert witness. *The Industrial-Organizational Psychologist, 38*(3), 128-130.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report, 13*(4), 544-559.

Bergh, Z.C. (2003). Personality assessment. In Z.C. Bergh & A.L. Theron (Eds.), *Psychology in the work context* (2nd ed., pp. 445-467). Cape Town: Oxford University Press.

Bloor, M. (1997). Techniques of validation in qualitative research: A critical commentary. In G. Miller & R. Dingwall (Eds.), *Context and method in qualitative research* (pp. 35-50). London: Sage.

Borum, R., & Grisso, T. (1995). Psychological test use in criminal forensic evaluations. *Professional Psychology: Research and Practice, 26*(5), 465-473.

Botha, P. (2001). Die kwalitatiewe onderhoud as data-insamelingstegniek: Sterk en swak punte [The qualitative interview as a data-gathering technique: Strengths and weaknesses]. *Journal of Family Ecology and Consumer Sciences, 29*, 13-19.

Brigham, J.C. (1999). What is forensic psychology, anyway? *Law and Human Behavior, 23*(3), 273-298.

Bryant, R.A. (2003). Assessing individuals for compensation. In D. Carson & R. Bull (Eds.), *Handbook of psychology in legal contexts* (2nd ed., pp 89-107). London: Wiley.

Camara, W.J., Nathan, J.S., & Puente, A.E. (2000). Psychological test usage: Implications in professional psychology. *Professional Psychology: Research and Practice, 31*(2), 141-154.

Cascio, W.F., & Aguinis, H. (2005). *Applied psychology in human resource management* (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Cattell, J.M. (1895). Measurements of the accuracy of recollection. *Science, 2*, 761-766.

Cavaye, A.L.M. (1996). Case study research: A Multi-faceted research approach for information systems. *Information Systems Journal, 6*, 227-242.

Coetzee, M., & Roythorne-Jacobs, H. (2007). *Career counselling and guidance in the workplace: A manual for career practitioners*. Cape Town: Juta.

Cordon, A., & Sainsbury, R. (2005). *Research participants' views on use of verbatim quotations*. Retrieved September 16, 2010 from http://www.york.ac.uk /inst/spru/pubs/ sstreps.html

Crabtree, B., & Miller, W. (1999). *Doing qualitative research* (2nd ed.). London: Sage.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative and mixed methods approach*. London: Sage.

Darke, P., Shanks, G., & Broadbent, M. (1998). Successfully completing case study research: Combining rigour, relevance, and pragmatism. *Information Systems Journal, 8*, 273-289.

Daubert v. Merrell Dow Pharmaceuticals (1993). Supreme Court of America.

Davies, P. (2006). Informed consent. In V. Jupp (Ed), *Sage dictionary fo social research methods* (pp. 149-150). London: Sage.

De Vries Shields Chiat Attorneys. (n.d.). *Information on Medical Negligence South Africa*. Retrieved February 28, 2009 from http://www.dsclaw.co.za.

Durrheim, K. (2006). Research design. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 33-59). Cape Town: University of Cape Town Press.

Durrheim, K., & Painter, D. (2006). Collecting quantitative data: sampling and measuring. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 131-159). Cape Town: University of Cape Town Press.

Effendi, K., & Hamber, B. (2006). Publish or perish: Disseminating your research findings. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 112-128). Cape Town: University of Cape Town Press.

Eisenhardt, K.M. (1989). Building theories from case study research. *Academy of Management Review, 14*, 532-550.

Ely, M. (1991). *Doing qualitative research: Circles within circles*. London: The Falmer Press.

Foxcroft, C., & Roodt, G. (2001). *An introduction to psychological assessment in the South African context*. Cape Town: Oxford University Press.

Foxcroft, C., Roodt, G., & Abrahams, F. (2001). Psychological assessment: A brief retrospective overview. In C. Foxcroft & G. Roodt (Eds.), *An introduction to psychological assessment in the South African context* (pp. 11-33). Cape Town: Oxford University Press.

Fulero, S.M., & Wrightsman, L.S. (2009). *Forensic psychology* (3rd ed.). Belmont: Cengage Learning.

Furnham, A., & Fong, E. (2000). Self-estimated and psychometrically measured intelligence. *North American Journal of Psychology*, *2*, 191-200.

Frye v. United States (1923). Court of Appeals of the District of Columbia.

Geldenhuys, M., Illsley, T., Burke, A., Donaldson, B., Naylor, V., Vorster, C., & Booysen, I. (2009). The forensic context. In V.Roos & C.Vorster (Eds.), *An introduction to forensic psychology*, (2nd edn., pp. 7-30). Potchefstroom: Platinum Press.

Gillham, B. (2000). *The research interview*. New York: Continuum.

Given, L. (2006). Qualitative research in evidence-based practice: A valuable partnership. *Library Hi Tech, 24*(3), 376-386.

Gregory, R.J. (2007). *Psychological testing: History, principles and applications*. Cape Town: Pearson Education.

Guba, E.G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication & Technology Journal, 29*(2), 75-91.

Harling, K. (2002, July). *An overview of case study*. Paper presented at a workshop of the American Agricultural Economics Association, Long Beach, California.

Harris, M.M. (2000). I-O psychology in the courtroom: Implications of the Daubert standard. *The Industrial-Organizational Psychologist, 38*(2), 42-46.

Hayes, S. (n.d.). *Expert psychological evidence*. Retrieved February 9, 2009 from http://www.aic.gov.au/conferences/medicine/hayes.pdf.

Health Professions Council of South Africa (2002). *Ethical code of professional conduct*. Retrieved December 15, 2009 from http://www.hpcsa.co.za

Health Professions Council of South Africa. (2006). *List of tests classified as being psychological tests*. Retrieved December 15, 2008 from http://www.hpcsa.co.za.hpcsa/UserFiles/File/Psychology/ F207 % 20updat % 20update % 20September%202006.pdf

Heilbrun, K. (1992). The role of psychological testing in forensic assessment. *Law and Human Behavior, 16*(3), 257-272.

Henning, E., Van Rensburg, W., & Smit, B. (2004). *Finding your way in qualitative research*. Pretoria: Van Schaik.

Hess, A.K. (1999). Serving as an expert witness. In A.K. Hess & I.B. Weiner (Eds.), *The handbook of forensic psychology* (2nd ed., pp. 521-555). New York: Wiley.

Hirschman, E.C. (1986). Humanistic inquiry in marketing research: Philosophy, method and criteria. *Journal of Marketing Research, 23*(3), 237-249.

Honey, D.P. (1987). *MVA practice under act 84 of 1986*. Pretoria: Government Printers.

Irvine, H., & Gaffikin, M. (2006). Getting in, getting on and getting out: reflections on a qualitative research project. *Accounting, Auditing and Accountability Journal, 19*(1), 115-145.

Jones, S. (1985). *Depth interviewing*. Vermont: Gower.

Kaiser, R.S. (1986). Forensic vocational assessment psychology. In M.I. Kurke & R.G. Meyer (Eds.), *Psychology in product liability and personal injury litigation* (pp. 185-206). Washington: Hemisphere.

Kargon, R. (1986). Expert testimony in historical perspective. *Law and Human Behaviour, 10*(1), 15-27.

Kelly, K. (2006). From encounter to text: Collecting data in qualitative research. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 285-319). Cape Town: University of Cape Town Press.

Kerlinger, F.N., & Lee, H.B. (2000). *Foundations of behavioural research* (4th ed.). New York: CBS.

Kogh, R.J. (2009). *The quantum yearbook*. Port Elizabeth: Van Zyl & Rudd.

Labour Relations Act 66 of 1995. *Government Gazette*, No. 1877.

Lally, S.J. (2003). What tests are acceptable for use in forensic evaluations? A survey of experts. *Professional Psychology: Research and Practice, 34*, 491-498.

Lamprecht, R. (1986). *The forensic psychological training and practice of clinical psychologists in South Africa*. Unpublished doctoral dissertation, Vista University, Port Elizabeth, South Africa.

Leedy, P.D., & Ormrod, J.E. (2001). *Practical research: Planning and design* (7th ed.). New Jersey: Prentice Hall.

Lewis, D. (2009). Assessment for compensation. In V.Roos & C.Vorster (Eds.), *An introduction to forensic psychology* (2nd ed., pp. 109-118). Potchefstroom: Platinum Press.

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverley Hills: Sage.

Loftus, E.F. (1991). Resolving legal questions with psychological data. *American Psychologist, 46*(10), 1046-1048.

Louw, D.A., & Allan, A. (1998). A profile of forensic psychologists in South Africa. *South African Journal of Psychology, 28*(4), 234-241.

Louw, J., & O'Brien, C. (2007). The psychological effects of solitary confinement: An early instance of psychology in South African courts. *South African Journal of Psychology, 37*(1), 96-106.

Lowenstein, L.F. (2002). *The psychological aspects of personal injuries*. Chichester: Barry Rose Law.

Luben, B., Larsen, R.M., & Matarazzo, J.D. (April 1984). Patterns of psychological test usage in the United States: 1935–1982. *American Psychologist*, 451-454.

Marshall, C., & Rossman, G.B. (1999). *Designing qualitative research* (3rd ed.). London: Sage.

May, T. (2001). *Social research: Issues, methods and process* (3rd ed.). Milton Keynes: Open University Press.

Maykut, P., & Morehouse, R. (1994). *Beginning qualitative research – A philosophic and practical guide*. London: Falmer Press.

Meintjies-Van der Walt, L. (2003). The proof of the pudding: The presentation and proof of expert evidence in South Africa. *Journal of African Law, 47*(1), 88-106.

Melton, G.B., Petrila, J., Poythress, N.G., & Slobogin, C. (1987). *Psychological evaluations for the courts: A handbook for mental health professionals and lawyers.* New York: The Guilford Press.

Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis: An expanded source book* (2nd ed.). Thousand Oaks, CA: Sage.

Miller, J., & Glassner, B. (1997). The "inside" and the "outside": Finding realities in interviews. In D. Silverman (Ed.), *Qualitative research: Theory, method and practice* (pp 99-112). Lodon: Sage.

Moodie, B. (1992). *Die kwantifisering van derde party versekeringseise: Die rol van die bedryfsielkundige* [The quantifying of third party insurance claims: The industrial psychologist's role]. Unpublished master's thesis, University of South Africa, Pretoria, South Africa.

Mouton, J. (2001). *How to succeed in your Master's and Doctoral studies: A South African guide and research book*. Pretoria: Van Schaik.

Mouton, J., & Marais, H.C. (1994). *Basic concepts in the methodology of the social sciences*. Pretoria: Human Science and Research Councel.

Mullen, K.L., & Edens, J.F. (2008). A case law survey of the Personality Assessment Inventory: Examining its role in civil and criminal trials. *Journal of Personality Assessment, 90*(3), 300-303.

Murphy, K.R., & Davidshofer, C.O. (2001). *Psychological testing: Principles and applications* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Naylor, V., Vorster, P., Cronjè, P., & Donaldson, B. (2009). Forensic assessment. In V. Roos & C. Vorster (Eds.), *An introduction to forensic psychology* (2nd ed., pp. 31-48). Potchefstroom: Platinum Press.

Neuman, W.L. (2000). *Social research methods: Qualitative and quantitative approaches*. Boston: Allyn & Bacon.

Nevid, J.S., Rathus, S.A., & Greene, B. (2006). *Abnormal psychology in a changing world* (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Packer, I.K. (2008). Specialized practice in forensic psychology: Opportunities and obstacles. *Professional Psychology: Research and Practice, 39*(2), 245-249.

Papalia, D.E., & Olds, S.W. (1985). *Psychology.* New York: McGraw-Hill.

Parker, I. (2005). *Qualitative psychology: Introducing radical research*. Glasgow: Open University Press.

Patton, M.Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). London: Sage.

Peyrot, M. (1995). Psychological testing and forensic decision making: The properties-in-use of the MMPI. *Social Problems, 42*(4), 574-586.

Piotrowski, C. (2007). Forensic psychological testing as a function of affiliation and organizational setting. *Organizational Development Journal, 25*(1), 94-98.

Pretorius, S., Hansen, Z., Smit, M., Joubert, T., Mostert, S., & Adinolfi, E. (2009). The use of existing measures to test the cognitive functioning of children within the South African context. *New Voices in Psychology, 5*(2), 51-63.

Republic of South Africa. (1998). Employment Equity Act 55 of 1998. Pretoria: Government Printers.

Republic of South Africa. (1974). Health Professions Act 56 of 1974. Pretoria: Government Printers.

Road Accident Fund. (2008). *Road accident fund annual report 2008*. Retrieved February 27, 2009 from http://www.raf.co.za.

Roos, V., & Vorster, C. (2009). *An introduction to forensic psychology* (2nd ed.). Potchefstroom: Platinum Press.

Rowley, J. (2002). Using case studies in research. *Management Research News, 25*(1), 16-27.

Rubenzer, S. (2005). Malingering psychiatric disorders and cognitive impairment in personal injury settings. Retrieved June 6, 2010 from http://www.steverubenzerphd.com /Malingering-Brain-Damage.php

Schmidt, C.W.H. (1989). *Bewysreg* (3de uitg.) [Evidence law (3rd ed.)]. Durban: Butterworths

Seale, C. (1999). *The quality of qualitative research*. London: Sage.

Searle, J.R. (1995). The construction of social reality. New York: The Free Press.

Shapiro, D.L. (1984). *Psychological evaluation and expert testimony: A practical guide to forensic work*. New York: Van Nostrand Reinold.

Smit, J.A. (1996). Evolving issues for qualitative psychology. In J.T.E. Richardson (Ed.), *Handbook of qualitative research methods for psychology and the social sciences methods* (pp. 189-202). Leicester: British Psychological Society Books.

Stake, R.E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.

Stern, L.W. (1939). The psychology of testimony. *Journal of Abnormal and Social Psychology, 40*, 3-20.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park: Sage.

Terre Blanche, M., Kelly, K., & Durrheim, K. (2006). Why qualitative research? In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 271-284). Cape Town: University of Cape Town Press.

Theron, A. (2003). Perspectives on general and work behaviour. In Z.C. Bergh & A. Theron (Eds.), *Psychology in the work context,* (2nd ed., pp. 3-15). Cape Town: Oxford University Press.

Van der Berg, E., & Van der Merwe, S.E. (2002). Opinion evidence. In P.J. Schwikkard, S.E Van der Merwe, D.W. Collier, W.L. De Vos, A Skeen & E. Van der Berg (Eds.), *Principles of evidence* (2nd ed., pp. 79-98). Cape Town: Juta.

Van der Riet, M., & Durrheim, K. (2006). Putting design into practice: Writing and evaluating research proposals. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 81-111). Cape Town: University of Cape Town Press.

Van Rensburg, E., Vorster, C., & Burke, A. (2009). Assessment for competency: Custody and curatorship. In V. Roos & C. Vorster (Eds.), *An introduction to forensic psychology* (2nd ed., pp. 85-107). Potchefstroom: Platinum Press.

Vorster, C. (2009). Introduction to forensic psychology. In V. Roos & C. Vorster (Eds), *An introduction to forensic psychology* (2nd ed., pp. 1-5). Potchefstroom: Platinum Press.

Vorster, C., Cramer, A., & Burke, A. (2009). Forensic psychology in criminal cases. In V. Roos & C. Vorster (Eds), *An introduction to forensic psychology* (2nd ed., pp. 55-63). Potchefstroom: Platinum Press.

Voss, C., Tsikriktsis, N., & Frohlich, M. (2002). Case research in operations management. *International Journal of Operations & Production Management, 22*(2), 195-219.

Wassenaar, D.R. (2006). Ethical issues in social science research. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 60-79). Cape Town: University of Cape Town Press.

Weiner, I.B., & Hess, A.K. (2006). *The handbook of forensic psychology* (3rd ed.). New Jersey: Wiley.

Welman, J.C., & Kruger, S.J. (2003). *Research methodology*. Cape Town: Oxford University Press.

Whittaker, G. (2007). Actuarial involvement in Road Accident Fund claims in South Africa. *International News, 43,* 29-32.

Wingate, P.H., & Thornton III, G.C. (2004). Industrial/organizational psychology and the federal judiciary: Expert witness testimony and the Daubert Standards. *Law and Human Behaviour, 28*(1), 97-114.

Witt, P.H., & Weitz, S.E. (Spring 2007). Personal injury evaluations in motor vehicle accident cases. *The Journal of Psychiatry and Law, 35,* 3-24.

Yin, R.K. (2003). *Case study research: Design and methods* (3rd ed.). London: Sage.