Curiosity, Exploration, and Strategies for Dealing with Uncertainty amongst Psychologists-in-Training

by

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Submitted in partial fulfilment of the requirements for the degree

of

Magister Artium

in Clinical Psychology

in the Faculty of Health Sciences

at the

Nelson Mandela Metropolitan University

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November 2009
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DECLARATION

Declaration by Student

In accordance with Rule G4.6.3, I, Ora Gerber, hereby declare that the treatise titled:

Curiosity, exploration, and strategies for dealing with uncertainty amongst psychologists-in-training is my own work and that it has not previously been submitted for assessment to another university or for another qualification.

Signature of student: ________________________  Student number: 208090321
Date: ________________________
ACKNOWLEDGEMENTS

I would like to thank the following persons for their support during the completion of my treatise:

- Jesus Christ for blessing me with the opportunity to fulfil my dream and live out my potential. For health and to be blessed with wonderful family and friends.
- My parents and brothers for supporting me through all these years.
- My supervisor, Prof. C. N. Hoelson for the opportunity to realise this study. Thank you for always being welcoming and for your continued guidance, support, and feedback.
- The masters, co-ordinators and lecturers from the University of Johannesburg, North-West University, and Nelson Mandela Metropolitan University for welcoming me and for their efforts in obtaining potential participants.
- The participants for their willingness to participate in this study.
- Danie Venter for the statistical analysis of the quantitative data.
- Sarah Plumb for the coding of the qualitative data.
- Dr Patrick Goldstone for the language-editing of this treatise.
ABSTRACT

By adopting a positive psychology framework, the aim of this study was to explore and describe the level of curiosity and exploration amongst psychologists-in-training, and how they dealt with uncertainty in the context of their professional development. A mixed-method exploratory-descriptive research design was employed to collect the quantitative data by means of the Curiosity and Exploratory Inventory. The qualitative data were collected using semi-structured interviews to explore how psychologists-in-training have dealt with uncertainty. Purposive-availability sampling was used to select the participants at three South African universities. A total number of 50 participants completed the CEI and six participants were interviewed. The data were analysed using mixed-method data analysis. It was found that participants had moderate-to-high levels of curiosity and exploration, with higher levels of exploration than absorption. The majority of participants reported that they actively sought as much information as they could and frequently looked for new opportunities to grow as persons. The strategies used by the selected group of participants to deal with uncertainty included: reliance on clinical supervision; consultation with peers; self-enhancement; reliance on theory; learning from practical experience; using certain cognitive appraisals; and self-care. Certain conclusions and recommendations were made based on the findings of the study.

Key words: psychologist-in-training, uncertainty, curiosity, exploration, strategies, and positive psychology.
CHAPTER 1

Problem Statement

Evidence suggests that stress-related problems amongst practising psychologists are common (Murtagh & Wollersheim, 1997). In a recent South-African study Jordaan, Spangenberg, Watson and Fouché (2007) investigated the relationship between stress and coping strategies in psychologists. These researchers found that 56.3% of participating clinical and counselling psychologists experienced above-average levels of anxiety, while 54.2% experienced depression.

The use of self-blame, behavioural disengagement, denial, and a lack of humour were used by these psychologists as coping strategies; and these strategies had the most important influence on the experience of anxiety. The coping strategies identified by Jordaan et al. (2007) in psychologists suggest that these psychologists did not actively approach or seek out ways to alleviate their stress. This could therefore be viewed as sub-optimal adaptive behaviour.

Research by Cushway and Tyler (1996) indicates that stress is even higher for psychologists-in-training than it is for practising psychologists.

Training as a psychologist is challenging. Psychologists-in-training are faced with: having dual status as postgraduate students and healthcare employees; integrating and applying what they have learnt; dealing constantly with emerging and changing issues; and needing to keep on growing personally and professionally (Corey, 2005; James & Gilliland, 2005; Kuyken, Peters & Lavender, 2003). Training can involve learning many new and diverse ways of working, such as applying different conceptualization and psychotherapeutic theories to individuals, groups, and communities. Training as a psychologist also involves learning a range of roles (for example, psychologist, diagnostician, therapist, researcher, team member). Each of these roles is challenging both personally and professionally (Kuyken, Peters, Power & Lavender, 1998). As a
result, psychologists-in-training might experience an over-concern with theories, anxiety over not seeing the fruits of their labour, and difficulty in defining their role as a psychologist (Corey, 2005). Furthermore, psychology as a science and practice is often imagistic, because the world is inexact, non-static, varying over time and constantly in different situations (Berry-Hillman, 1981). It is intrinsically uncertain because it involves human beings, relationships and the need to evaluate aspects, such as cognitions, emotions, and behaviour (Berry-Hillman, 1981; Gelatt, 1995; Helsing, 2007). According to Skovholt and Ronnestad (2003), the major reason for the severe stress faced by trainees is the inherent uncertainty of their professional work.

Given the above context, it is understandable that healthy psychological adaptation during training as a professional is required. Kuyken et al. (2003) conducted a longitudinal study on the adaptation and professional functioning of psychologists-in-training in Britain. They found that at least 25% of psychologists-in-training reported significant problems with self-esteem, work adjustment problems, depression, and anxiety. If trainees have difficulty in adapting psychologically, this will adversely affect their capacity to learn (Helsing, 2007; Kuyken et al., 2003). Kuyken et al. (2003) found that the appraisal of threat and a lack of control in learning predict poorer psychological adaptation over the course of the training. Problems of psychological adaptation give rise to concerns regarding a trainee’s adequacy and effectiveness as a person and as a professional (Helsing, 2007; Kuyken et al., 2003). It is likely that if practitioners are uncertain about their own effectiveness that they might tend to have low levels of self-esteem and heightened self-doubt (Helsing, 2007). As a result, these practitioners may attempt to avoid situations where they may experience feelings of uncertainty (Helsing, 2007).

Although feelings of uncertainty may be experienced as a negative state, uncertainty has also been described as a positive phenomenon. Uncertainty has been described by some researchers
as an important element leading to improved practice (Helsing, 2007). If one accepts uncertainty, original or alternative action becomes possible, as it offers a chance to reinterpret the meaning of circumstances (Phelan & McLaugling, 1995). It can therefore be assumed that practitioners who are able to be open, and to learn from their uncertainties may be able to grasp particular views associated with higher levels of maturity (Helsing, 2007).

Uncertainty has also been seen as being closely related to curiosity and exploratory behaviour. According to drive theory (Litman & Jimerson, 2004), curiosity is aroused when unpleasant feelings of uncertainty are experienced. In order to reduce such feelings of uncertainty, human beings are motivated to obtain new information by means of exploratory behaviour (Litman & Jimerson, 2004). Curiosity prompts proactive, intentional behaviours not only to stimuli and activity that involve uncertainty, but also to uniqueness, complexity, and conflict (Kashdan, Rose & Fincham, 2004). However, it must be noted that the extent to which people become curious appears to be a function of recognising the probable novelty, complexity, uncertainty, and conflict. Furthermore, whether people feel curious, explore or derive the benefits of curious behaviours, appears to be influenced by contextual factors (Kashdan & Silvia, 2009). For example, perceptions of threat inhibit curiosity whereas perceptions of supportiveness promote curiosity (Kashdan & Silvia, 2009).

Curiosity is also described as a significant motivational element that associates challenge with growth opportunities (Kashdan, Rose & Fincham, 2004). Through the process of growth or skill enhancement, one’s sense of self and adaptation to environmental challenges can improve. Using newly learned skills will likely increase feelings of pleasure and competence, reinforcing the need for more learning and further participation in skill-based activities (Kashdan, Rose &
Fincham, 2004). Kashdan and Fincham’s (2002) and Kashdan, Rose and Fincham’s (2004) findings indicate that being curious is associated with various positive psychological outcomes.

From the above discussion, it becomes clear that psychologists-in-training are faced with various challenges which might cause uncertainty. How psychologists-in-training approach these uncertainties may adversely affect or even enhance their psychological adaptation. Fear of uncertainty or perceived low self-efficacy and behavioural disengagement may be regarded as suboptimal psychological adaptation strategies (Jordaan et al., 2007; Kuyken et al., 2003; McCalla, 1992). Proactive intentional behaviours, such as curiosity and exploration in response to uncertainty, will most likely lead to healthy psychological adaptation and professional growth (Kashdan, Rose & Fincham, 2004). The British Association for Counselling and Psychotherapy (BACP, 2002), stated that it should be acknowledged that opportunities for professional development in training can take different forms. No studies to date have explored and described curiosity and exploratory behaviour amongst psychologists-in-training. Even though trainees are faced with uncertainties, no recent research has explored and described how they deal with this uncertainty. One study was reported in 1985 by Bienenfeld. However, she investigated practising professionals’ uncertainties only in the context of psychotherapy.

Much attention has been given to dysfunctional behaviour in psychologists (Skovholt & Ronnestad, 1992). Far less attention has been given to resilience factors that facilitate professional development or growth. This study therefore aims to determine the level of curiosity and exploration in a group of psychologists-in-training; and to explore and describe how psychologists-in-training have dealt with uncertainty in the context of their professional development. Using a psychofortology approach allows individual or group strengths to be identified (Strümpfer, 2005). The ways in which psychologists-in-training deal with uncertainty
and their levels of curiosity and explorative behaviour will enable a better understanding of how they adapt. These studies should also assist in promoting optimal levels of professional functioning. Seligman and Csikszentmihalyi (2000) stated that the social and behavioural sciences can play an enormously important role in showing what actions can lead to wellbeing, to positive individuals, and thriving communities. Early strengths’ identification and encouragement will have long-ranging effects for psychologists and their clients (Kuyken, Peters, Power, Lavender & Rabe-Hesketh, 2000). This study will also seek to make recommendations in this regard.

**Conceptual Framework**

Sheldon, Fredrickson, Rathunde, Csikszentmihalyi and Haidt (2000) defined positive psychology as the scientific study of optimal human functioning. Positive psychology is a relatively new paradigm in psychology in contrast to the traditional pathogenic paradigm (Strümpfer, 2005). The pathogenic paradigm is an orientation to the abnormal with an interest in deficiencies. Leshner (1999) referred to this as identifying “risk factors” and then finding a way of preventing the problem. This approach assumes that the best way to prevent a problem is to focus on what causes it (Leshner, 1999). Seligman and Csikszentmihalyi (2000) proposed that there should not only be a focus on repairing the worst things in life, but also on how to build positive qualities. The positive paradigm is based on the assumption that stressors, adversity, and other inordinate difficulties are inherent in the human condition. However, there are also sources of strength through which this condition may be endured (Strümpfer, 2005). Furthermore, conditions such as stressors and adversity can for many stimulate continuous growth and strengthening. This construct is called salutogenesis (Latin *salus*=health + Greek *genis*, from *gen-* = be produced, root of *gignomai* = to become). It proposes a focus on the
origins of health (Strümpfer, 2005). Wissing and Van Eeden (1997) introduced the construct of psychofortology. These researchers suggested investigating the origins of psychological well-being, the nature, manifestations, and subsequent ways of enhancing human capacities.

Positive psychology aims to discover and promote factors that allow individuals, communities, and societies to thrive and flourish (Compton, 2005). Three broad dimensions have been identified in the context of positive psychology, namely positive subjective states (e.g. positive emotions), positive individual traits (e.g. enduring and persistent behavioural patterns), and at the group level, positive institutions (e.g. healthy work environments, positive communities; Compton, 2005). The current investigation is especially concerned with finding possible ways of identifying strengths in individuals and also in the institutional context, and making recommendations in this regard.

Research Aims

The aims of this study are to (a) determine the levels of curiosity and exploration in a group of psychologists-in-training; and (b) to explore and describe how psychologists-in-training have dealt with uncertainty during the course of their professional development.

Overview of Chapters

In Chapter 2, the context of psychologists-in-training is outlined. The professional training of psychologists is also briefly discussed. The general context of uncertainty is then outlined followed by a more specific description of uncertainty in the context of psychology as a profession, including the concept of psychological uncertainty. The challenges and uncertainties that psychologists-in-training are faced with will then be discussed. Lastly, attention is given to psychological adaptation in psychology trainees.
Chapter 3 is concerned with curiosity and exploration. The concepts of curiosity and exploration will be outlined; their relation to uncertainty will also be emphasised. Factors that influence the arousal and experiences of curiosity and exploration will also be discussed. These factors include early personality development, interest, flow states, and emotional experiences. The importance of curiosity and exploration in the context of psychologists-in-training, namely the educational and social settings are also to be outlined. Lastly, curiosity and exploration will be discussed in the context of positive psychology.

In Chapter 4, the research design and methodology for the current study will be discussed. A mixed method exploratory descriptive design which includes both quantitative and qualitative data-collection procedures was used to answer the research questions. The quantitative data were collected using the Curiosity and Exploratory Inventory in order to determine the levels of curiosity and exploration in psychologists-in-training. The qualitative data were collected using semi-structured interviews, in order to explore and describe how psychologists-in-training have dealt with uncertainty. Participants were selected using purposive-availability sampling; and the sample consisted of psychologists-in-training from three South African Universities, namely Nelson Mandela Metropolitan University, the University of Johannesburg, and North West University. A total number of 50 psychologists-in-training completed the CEI and six participants were interviewed to explore and describe how they have dealt with their uncertainty. Data were analyzed using Onwuegbuzie and Teddlie’s (2003) mixed-method data analysis. Attention was given to ethical considerations and the research procedure, as well as the validity and reliability of the quantitative data and the trustworthiness of the qualitative data.

The results of the study are shown and discussed in Chapter 5. The results of the Curiosity and Exploratory Inventory (CEI) will be followed by the results of the various strategies that
were used by the selected participants for dealing with uncertainty. Results are integrated with existing literature in the final discussion. In Chapter 6, conclusions are drawn from the current study. The limitations of the study are discussed and recommendations are made for future research, as well as for practical application.
CHAPTER 2

Psychologists-in-Training

This chapter outlines the context of psychologists-in-training; this will be followed by a brief description of the professional training models. Attention will then be given to the context of uncertainty in general, and uncertainty in the context of psychology as a profession. Uncertainties with which psychologists-in-training are faced will then be discussed, as well as the relevant literature concerning difficulties in the psychological adaptation of trainees.

The Context of Psychologists-in-Training

One of the requirements for registration as a clinical or counselling psychologist in South Africa is an accredited Master’s degree recognised by the Health Profession Council of South Africa (HPCSA, 2009). Studies and training in Master’s clinical and counselling psychology extend over a minimum of two academic years (HPCSA, 2009). Studies in the first year of the Master’s degree consist of theoretical modules, attending lectures and seminars, and completion of the prescribed practical work (Pillay & Kritzinger, 2007). Studies in the second year of the Master’s degree require the completion of an internship over a minimum period of 12 months at an accredited institution. Obtaining the Master’s degree, however, does not only consist of the theoretical models and required practical work in the first and second years of study, but also the completion of a treatise (HPCSA, 2009). The final requirement for obtaining a Master’s degree in clinical or counselling psychology is the successful completion of the Professional Board of Psychology’s examination after completion of the Master’s degree. This is required in order to register as a clinical or counselling psychologist (HPCSA, 2009). In the context of this research, psychologists-in-training are referred to as trainees in the first or second year of their Master’s degree in clinical or counselling psychology.
Professional Training of Psychologists

Several models have been recommended in training professionals, in order to ensure competence and professionalism (Kolb & Kolb, 2005; Long & Hollin, 1997; Sheikh, Milne & MacGregor, 2007; Stone, 2006; Stricker, 2002; Vespia, Sauer & Lyddon, 2006). The most well-known models include the scientist-practitioner model (Holttum & Goble, 2006), the experiential-learning model (Kolb, 1984), and a more recent model called the Personal Professional Development (PPD) model (Gillmer & Marckus, 2003). In order to gain a basic understanding of the professional training of psychologists internationally, an overview of the scientist-practitioner, experiential-learning, and the PPD models will be briefly conducted.

The Scientist-Practitioner Model

Training for psychologists in the United States of America (USA) and Britain in recent decades has been based mainly on the scientist-practitioner model (Holttum & Goble, 2006). According to Long and Hollin (1997), the scientist-practitioner model refers to counsellors who carry out research and draw on that research to enlighten their practice. The American Psychological Association (2002) stipulates that: “All programmes should enable their students to understand the value of science for the practice of psychology and the value of practice for the science of psychology” (p. 5). According to Pillay and Kritzinger (2007), the training of psychologists in South Africa is also based on the scientist-practitioner model. This model requires that psychologists be trained to be both practitioners as well as researchers (Shapiro, 2002). In South Africa the balanced percentages of the treatise, theory and practical work are in line with the USA scientist-practitioner model (Pillay & Kritzinger, 2007).

However, the scientist-practitioner model of professional training has been questioned by, amongst other, Garfield (1986) and Pilgrim and Treacher (in Holttum & Goble, 2006). One
main concern has been whether psychologists actually do merge the roles of scientist and practitioner (Barlow, 1981). Some authors have even questioned the necessity to do so (Shakow in Long & Hollin, 1997). Another debate regarding this model is whether clinician and researcher are not in fact conflicting roles (Long & Hollin, 1997).

Furthermore, internationally, and in South Africa, there have been concerns regarding trainees that seldom ever complete their treatises within the stipulated two years of training (Holttum & Goble, 2006; Pillay & Kritzinger, 2007). Pillay and Kritzinger (2007) investigated, amongst other issues, the perception of barriers that hamper the completion of the treatise in clinical psychology in South Africa. Some participants reported insufficient time, insufficient supervision, methodological problems with their research, and personal factors which included reports of feeling overwhelmed and uninterested.

As a clinical psychology trainee, David (2006) was encouraged to reflect on his own experience on whether or not it was feasible to be a scientist-practitioner. His reflections revealed that he experienced the process as time-consuming, delivering conflicting demands, and frustration at the length of the process (e.g. ethical approval of research). He expressed it as a difficult journey: “I experienced a rollercoaster ride of emotions, which cannot have been easy for those around me either” (p. 169). Even though David (2006) was faced with these challenges, he reported being pleased with the end result; and that he could incorporate research into his clinical practice. Stone (2006), as a trainee in the United States of America (USA), stated that the scientist-practitioner model made sense to him; and it served as a productive framework from which to work, both as a researcher and a practitioner.

Long and Hollin (1997) stated that dual training in practice and research skills lends an important value to the profession of psychology. Stricker (2002) also implied that the scientist-
practitioner model represents a valuable goal for clinicians to aim for. Stricker (2002) in his research aimed to develop recommendations that would allow for a more realistic view of the scientist-practitioner model. He summarised the characteristics of the scientist-practitioners as follows: (a) in the process of doing clinical work, they display a questioning attitude and search for confirmatory evidence; (b) they apply research findings directly to practice; (c) they undertake an evaluation of their individual practices; (d) and they produce research either collaboratively or more traditionally. Stricker (2002), however, cautioned that not all practitioners would be able to learn all the techniques incorporated in the scientist-practitioner model. He therefore advised practitioners to be ethical and self-reflective, and to recognise their strengths and weaknesses and make appropriate referrals of clients accordingly (Stricker, 2002).

The Experiential Learning Model

Sheikh, Milne and MacGregor (2007) regard Kolb’s (1984) experiential learning model as an important aid in helping trainees to develop competencies. Experiential learning theory defines learning as, “the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 41). Kolb’s (1984) model consists of four elements: (1) concrete experience; (2) observation and reflection; (3) formation of abstract concepts; and (4) testing in new situations. According to Kolb (1984), the learning cycle can begin at any one of the four elements and that experiential learning should be viewed as a continuous spiral. The theory rests upon six propositions (Kolb & Kolb, 2005): (1) learning is a process, a process that includes feedback on the effectiveness of the learning efforts; (2) all learning is relearning which implies that students can examine, test, and integrate their beliefs and ideas into new more-refined ideas; (3) learning requires the resolution of conflicts and adaptation to the world; (4) learning is a holistic process of adaptation to the world which involves integrating the total person; (5)
learning consists of synergetic transactions between the person and the environment; and (6) learning is the process of creating knowledge.

According to Sheikh, Milne and MacGregor (2007), some of the advantages of Kolb’s model are that: (1) it places reflection in the context of related methods that have high face validity; (2) it is highly suitable for learning from training experience; (3) it affords a coherent account of professional development; and (4) it is congruent with the profession of psychology’s primary reliance on a scientific approach to learning.

The Personal Professional Development (PPD) Model

The Department of Health (2004) in Britain stated that it should be ensured that professionals receive ‘systematic training’. It furthermore recommended that staff development at institutions should encourage enduring learning and reflective practice (Department of Health, 1999). A new model to address these training priorities was therefore introduced, namely ‘Personal Professional Development’ (Gillmer & Marckus, 2003). Personal Professional Development (PPD) represents a component of the curriculum aimed at developing the ability in trainees to critically and systematically reflect on the work-self boundary (Gilmer & Marckus, 2003). Cross and Papadopoulos (in Sheikh, Milne & MacGregor, 2007) further defined PPD as a part of knowing oneself and understanding how one’s encounters with the world are formed by one’s experiences. The aim of PPD is to promote the personal awareness and resilience necessary for optimal professional functioning (Gillmer & Marckus, 2003).

According to the British Psychological Society (2001), the following aims are also regarded as important elements in the development of professionals: being aware of the limitations of one’s own competence; making use of supervision; and handling the impact of one’s own practice by developing the necessary strategies.
Skeikh, Milne, and MacGregor (2007) assimilated the experiential learning model into PPD. As seen in the centre of Figure 2.1 below, the key PPD functions are improved self-awareness, resilience-building, and heightened reflective ability (Gillmer & Marckus, 2003). The aim of these key functions is to help trainees to improve their service to their clients (Sheikh, Milne & MacGregor, 2007). Extending outwards from these functions, there are four learning processes. These learning processes include methods such as experiencing, doing, planning, conceptualizing, and reflecting. Evidence suggests that reflection on personal experience is a fundamental process in the training of therapists (Norcross, Karpiak, & Santoro, 2005). The third system of the model is relationships and supportive systems, such as university counselling services and peer group social support. The final system consists of the course, assignments, and tasks within which all the smaller systems can be contextualised (Sheikh, Milne & MacGregor, 2007).

The PPD model is a dynamic model of development, one that assumes that each ring interacts in a fluid way with all the others (Sheikh, Milne & MacGregor, 2007). Furthermore, the PPD model takes individual differences into consideration, such as the individual’s personality, attitudes, and contextual factors which may influence the level of engagement of trainees within the model. For example, how likely it is that an individual will access social support systems. Even though the PPD model recognises individual differences, the model attempts to generalise these experiences and to apply them to all trainees (Sheikh, Milne & MacGregor, 2007). It should be noted that some of the aspects in the PPD model, as seen in the figure below, (e.g. NHS, Balint and Systemic SIGS) may not be applicable to trainees in South Africa.
Even though the above-mentioned models are being applied to ensure optimal professional training, Kuyken, Peters, Power and Lavender (2003) are of the opinion that the knowledge foundation of psychology continually increases. The result is that it becomes progressively more difficult to teach trainees all there is to know about being a psychologist (Kuyken, Peters, Power
Furthermore, trainees might be confronted with complex situations in which there are no correct answers or any standard performance as a yardstick (Webster, Hingley & Franey, 2000). Trainees are often required to have the ability to integrate or choose between contradictory perspectives for which there are no protocols. Becoming a professional requires the ability to make suitable decisions under conditions of uncertainty and conflict (Webster, Hingley & Franey, 2000). Fox (1957) described three sources of professional uncertainty: (1) whether the individual practitioner has effectively mastered the knowledge base of the discipline; (2) gaps in the knowledge base itself; and (3) the source of the uncertainty itself, for example if the practitioner does not know whether his or her uncertainty is due to gaps in the knowledge base or due to his or her own personal inadequacy.

**The Context of Uncertainty**

According to Gordon (2003), uncertainty is deeply rooted within the core of reality. This is supported by Gelatt (1995), who views uncertainty as inherent to life. Gordon (2003) draws on May’s (1977) writings which suggest that human beings are resistant to uncertainty and have a great need to induce order. However, according to Gordon (2003), the universe refuses to conform to certainty, continually challenging our longing and need for certainty. Furthermore, being human is not an unchanging state. Human beings are embedded in a continuous process of choice, in confronting ambiguity and uncertainty. Zukav (in Gelatt, 1995) asked this question: “Will human beings continue to try and defeat chaos or learn to dance with it?” (p. 108). Gordon (2003) believes that the rejection of uncertainty (as an essential aspect of reality) has been a cause of damage to our psyche and our world (Gordon, 2003). For uncertainty to make sense then, Gordon (2003) and Gelatt (1995) propose that the predictable, closed-systems’ view of the universe should be exchanged for a world composed of interdependent, interpenetrating
networks of relationships. When non-linearity is accepted, uncertainty can be perceived as a genuine and authentic perception of the world as it truly exists. According to Heidegger (1962), anxiety emerges concurrently with the awareness of uncertainty, and is perceived as a necessary state of being. The reason being that uncertainty (and the accompanying anxiety) is a necessary consequence of a creative world. In this view, one can look at confusion creatively rather than being afraid of it (Gelatt, 1995).

Uncertainty and Psychology

More specifically, concerning the current research, Meara and Day (2003) stated that the science of psychology is subject to the same uncertainties as all scientific investigation (e.g. faulty assumptions, imperfect theories, and interpretations based on inferential statistics). However, Gordon (2003) believes in the possibility of a psychology in which uncertainty is regarded, not as a limit, but as an appearance of the continuous creativity that is natural to the universe. Meara and Day (2003) support this view when they state that important qualities for academics are the intellectual pleasure of uncertainty and the appreciation thereof.

According to Gelatt (1995), not knowing is hard for therapists and clients to accept, however, ignorance is an ideal state from which to learn. For example, Gelatt (1995) states that: “If we did not need to know so much, what would this do to our capacity to learn more?” According to Jennings, Goh, Skovholt, Hanson and Banerjee-Stevens (2003), comfort with ambiguity is one characteristic of counselling and therapy expertise. These last-mentioned researchers also stated that optimal counsellor and therapist development involves having an awareness of the complex ambiguity of the work. Gordon (2003) therefore calls of psychologists to redress both scientific and psychological perceptions of uncertainty. In supporting this notion, Gelatt (1995) identified a strategy called positive uncertainty. This strategy of positive uncertainty implies that therapists
need to learn to be able to change as their environments change. Positive uncertainty suggests the acceptance of uncertainty and for viewing uncertainty with a positive attitude.

**The Concept of Psychological Uncertainty**

Weber (1999) conceptualized psychological uncertainty as the individual’s perception and reasoning abilities in the searching, filtering, compiling, and integration of data. Psychological uncertainty consists of how the individual perceives and reasons. According to McCalla (1992), the individual’s perceptions and reasoning abilities influence where the individual searches for data and how the data will be processed. Perceptions of fear or distrust may cause an individual to discount certain data and distort the data that have been gathered and, in turn, create a perception of uncertainty. Similarly, feelings of confidence can cause an individual to accept only data which reinforce the current knowledge, and thus produce perceptions of absolute certainty (Weber, 1999). According to Litman, Hutchins and Russon (2005), uncertainty refers to and is a result of a lack of knowledge. This gap in one’s knowledge reveals an inconsistency between what one knows and what one desires to know.

**Psychologists-in-Training: Challenges and Uncertainty**

Psychologists-in-training are faced with various challenges (Corey, 2005; James & Gilliland, 2005; Kuyken, Peters & Lavander, 2003). Psychologists-in-training are faced with learning a range of roles; they also need to function in multiple statuses, as psychologists, diagnosticians, psychotherapists, researchers, and team members (Kuyken, Peters, Power & Lavander, 1998). These different roles are challenging, both personally and professionally, and trainees might find it difficult to define their specific role as psychologists (Corey, 2005; Kuyken et al. 1998). Secondly, as healthcare employees, psychologists-in-training are constantly dealing with emerging, changing, and ethical issues (James & Gilliland, 2005). Dealing with changing and
complex situations, furthermore, requires that psychologists-in-training integrate and apply what they have learnt. The professional training of psychologists, requires that trainees learn many and diverse ways of working. These include applying different psychotherapeutic models and techniques. Examples of these therapeutic models include Psychoanalysis, Cognitive-Behavioural Therapy, Gestalt Therapy, Person-Centred Therapy, Group Therapy, Family Therapy, Crisis Intervention, and Community Psychology. These models and others differ in the way client’s information is conceptualized, the way in which a practitioner makes a diagnosis, and how to treat clients to bring about therapeutic changes (Corey, 2005). In addition, in practice, all these models have their own benefits and limitations (Corey, 2005).

Moro (2007) stated that after a trainee has mastered a certain degree of theoretical knowledge, the trainee is then confronted with the problems of how to apply this theoretical knowledge. Knowledge remains a theoretical idea until the trainee can transfer the theory into practice (Moro, 2007). Training, integration, and the application of different psychotherapeutic models in particular, have received much attention in the literature (Sprenkle & Blow, 2007). When psychologists-in-training are trained in psychotherapeutic models, it has been recommended that individual differences be recognised, as trainees all have their own experiences, needs, personality, and attitudes (Sheikh, Milne & MacGregor, 2007). Sprenkle and Blow (2007) therefore believe that psychologists-in-training should be aware of their own worldview and other personal issues, as these all play important roles in a therapist’s development. According to Simon (2006), it is important for a therapist to adopt a model that is congruent with his or her worldview to provide maximised quality treatment. This is in agreement with Skovholt and Ronnestad’s (1992) findings regarding the themes that are relevant to therapists and counsellors over the course of their personal and professional development. They found that professional
development involves professional individuation, that is, moving towards an integration of the professional self and the personal self. The process of integration involves a consistency between the person’s values and his/her theoretical stance (methods and techniques used by the individual). Skovholt and Ronnestad (1992) stated that ideally, the end result of the process of integration or individuation is an optimal therapeutic self. The way a trainee assimilates a new professional persona has a direct influence on factors such as quality and steadiness of practice and the development of competence and understanding (Skovholt & Ronnestad, 1992). The way a trainee assimilates a new professional persona has, furthermore, a direct influence on feelings of isolation, and confidence or one’s level of self-worth (Webster, Hingley & Franey, 2000).

Sprenkle and Blow (2007), however, argue that more attention should be paid to therapist expertise independent of the model the therapist adopts. Evidence exists that therapists’ effectiveness vary, even if they practise with models that are consistent with their worldview (Sprenkle & Blow, 2007). For example, someone who practises with a model consistent with his/her worldview may still be a poor therapist. The focus should therefore be on the therapist who implements models, since models work through therapists (Sprenkle & Blow, 2007). In this view, Blow, Sprenkle, and Davis (in Sprenkle & Blow, 2007) argue that all models have mechanisms of change, and it is the therapist who activates these mechanisms. Blow et al. (in Sprenkle & Blow, 2007) stated that: “It is up to the therapist to bring life to models, to know what to do, when to do them, with what clients, around what problems and how to account for their specific familial and cultural contexts” (p. 112). Clients that come for psychotherapy present with a series of difficulties for which there may be no clear-cut solutions (Egan, 2002). What works with one client may not work with the next one. This implies that every client or problem is unique (O’Byrne, Clark & Malakuti, 1997).
Furthermore, keeping the cultural context in mind is of increasing importance for trainees in South Africa. In South Africa, movement towards multicultural competence has increased (Constantine, Hage, Kindaichi & Bryant, 2007). Multicultural competence is defined as the extent to which counsellors possess suitable levels of self-awareness, knowledge, and skills in working with individuals from diverse cultural backgrounds (e.g. poverty, society in transition) (Arredondo, Toporek, Brown, Jones, Locke, Sanchez, et al. 1996). Self-awareness, in this context, entails being aware of one’s own attitudes, beliefs, and values regarding race, ethnicity, and culture (Constantine, Hage, Kindaichi & Bryant, 2007).

Pluralism increases uncertainty because it consists of differences between people that are often hidden (Meara & Day, 2003). Individual differences between people increase uncertainty with respect to those qualities which might be the most appropriate in any given circumstances (Meara & Day, 2003). As a result of this diversity in the application of psychological theory to different situations and diverse clients, psychologists-in-training might, for example, experience an over-concern with theories and experience anxiety over not seeing the fruits of their labour (Corey, 2005).

Another challenge for psychologists-in-training is that they are under the pressure of constant evaluation by their supervisors (Kuyken et al. 1998; Skovholt & Ronnestad, 1992). Yet, evaluation must take place, because quality control of professional behaviour is necessary (Skovholt & Ronnestad, 2003). For example, in one study a trainee stated that there was considerable pressure to be seen to be coping and doing well (Kuyken et al., 1998). Trainees may therefore display perfectionism, obsessiveness, rigidity, and preoccupation in many areas of professional functioning, such as the working approach and the conceptualization of issues (Corey, 2005; Skovholt & Ronnestad, 1992).
In the light of the above challenges and uncertainty, it becomes understandable that training as a psychologist requires an ability to deal effectively with uncertainty and to be able to adapt optimally.

**Psychological Adaptation**

Recent research regarding psychologists-in-training has been concerned with psychological adaptation. Kuyken, Peters, Power and Lavender’s (1998) longitudinal study of adaptation and professional functioning of psychologists-in-training in Britain aimed at profiling the psychological adaptation of clinical psychologists-in-training. A sample of 183 trainee clinical psychologists from 15 British clinical psychology training programmes participated in the study. One major finding was that trainees reported relatively high levels of perceived stress. More than 25% of the trainees experienced difficulties in terms of self-esteem, work adjustment, depression, and anxiety (Kuyken, Peters, Power & Lavender, 1998). Brooks, Holtum and Lavender (2002) found similar results to those of Kuyken et al. (1998). Even though the overall sample in the study of Brooks et al. (2002) consisted of trainees who were well adjusted, trainees had a tendency towards self-esteem problems, anxiety, depression, and work adjustment difficulties. In addition, 41% of the participants had one of the above difficulties. This strongly indicates that distress in trainees is relatively common.

The study of Kuyken et al.(1998), furthermore, identified differences in those individuals who experienced difficulties in psychological adaptation. They found that 42% of the men reported more use of avoidance coping and substance abuse, and that older trainees reported greater external stressors, such as family and financial commitments.

Kuyken et al (1998) also examined to what extent appraisal, coping and social support could predict variations in psychological adaptation. Appraisal of threats to learning impacted on
adaptation directly, and resulted in a predisposition to use more avoidance coping. In clinical training, avoidance coping, used as a constant strategy, may impede adaptation and lead to emotional numbness, intrusions of threatening material, and impaired reflective ability (Kuyken et al., 1998). It has previously been shown that avoidance coping amongst health workers was associated with poorer psychological adaptation in the work environment (Bowman & Stern, 1995). Trainees who used less avoidance coping tended to adapt better over time (Kuyken, Peters, Power & Lavender, 2003). Brooks et al. (2002) found that trainees in their study were enhancing and searching for positive stimuli rather than avoiding distress.

Conclusions

According to Jones (2008), psychologists have the potential to influence people’s lives, and as a result, effective training is an important responsibility for which trainees must be equipped with the best possible means to achieve competence. According to Schon (1993), a very important part of the curriculum of training for professionals is how trainees learn to deal with uncertainty, uniqueness, and conflict. Training needs to involve practical experience, so that students can move further than the uncertain functional capacity of the trainee, towards having a greater competence in the depth and complexity of their responses to the related demands in the profession (Jones, 2008).

However, trainees’ active engagement should not be ignored when their development as professionals is considered (Sheikh, Milne, & MacGregor, 2007). Professional development also relies on trainee’s dedication to growth and development. According to Guest, Regehr, and Tiberius (2001), it is not just experience in itself that aids in the development of expertise, but rather what an individual makes of that experience. Hard work, effort, motivation, desire and perseverance are noteworthy variables in developing expertise (Skovholt, Ronnestad & Jennings,
1997). The current research is partly concerned with how psychologists-in-training dealt with their uncertainties during their personal and professional development. The conceptual framework of this research, namely positive psychology, is based on the possibility that trainees could deal with their uncertainties proactively by being curious and engaging in exploratory behaviour (which might include various strategies) when confronted with conflicting, ambiguous, and uncertain situations.
CHAPTER 3
Curiosity and Exploration

Research on the topic of curiosity and exploration has recently received much attention, and the literature on the topic is growing (Berlyne, 1960; Dewey, 1910; Kashdan, Rose & Fincham, 2004). This chapter gives an outline of the relevant literature regarding curiosity and exploration. Firstly, curiosity will be defined; this will be followed by a conceptualisation of curiosity and exploration applicable to the current study. Since the current study is partly concerned with uncertainty amongst psychologists-in-training, the relationships between curiosity, exploration, and uncertainty are also stressed. Attention will then be given to factors influencing the arousal process and experience of curiosity and exploration. These factors include early personality development, interest, flow states, and emotional experiences. The importance of curiosity and exploration will then be discussed in relevant contexts, such as the educational setting, the social setting, and positive psychology.

The Concepts of Curiosity and Exploration and their Relation to Uncertainty

Curiosity has been a topic of investigation for several decades (Dewey, 1910). As a result, different types of curiosity have been identified and conceptualised, which also resulted in several proposed definitions for curiosity (Berlyne, 1960; Dewey, 1910; Kashdan, 2002; Kashdan, Rose & Fincham, 2004). Within the scope of the current research, curiosity is defined “as a positive emotional-motivational system associated with the recognition, pursuit, and self-regulation of novel and challenging opportunities” (Kashdan, Rose & Fincham, 2004, p. 291). The emotional-motivational state of curiosity is associated with actively gaining information to create, maintain, and/or resolve any gaps in knowledge (Kashdan, 2002). Kashdan and Silvia (2009) emphasise within their definition of curiosity, an intense desire to explore (act and think),
and learning about challenging and uncertain events. Kashdan and Silvia’s (2009) definition of curiosity thus highlights exploratory behaviour. Berlyne (1974) however, defined curiosity in a slightly different way to the above definition of curiosity. According to Berlyne (1974), curiosity is an *aversive* organismic condition precipitated by the experience of uncertainty. Individuals then seek to reduce uncertainty in order to alleviate the aversive condition.

Literature thus suggests that there exists a relationship between uncertainty, curiosity, and exploration. According to Boykin and Harackiewicz (1981), curiosity relates to uncertainty monotonically, and it is therefore almost impossible to unravel their separate effects. Other researchers, by contrast, show that the relationship between curiosity and uncertainty can be described as an inverted U (Crandall, 1971). Berlyne (1954) found in one study that subjects experiencing uncertainty expressed greater curiosity.

The current study is concerned with Berlyne’s proposed conceptualisation of curiosity and exploration. Berlyne (1960) proposed two types of curiosity and exploratory behaviours in response to novelty, complexity, uncertainty, and conflict, namely diverse curiosity and specific curiosity. Diverse curiosity involves an individual actively seeking out wide-ranging sources of novelty and challenges. It furthermore involves scanning, recognition, pursuing, and assigning personal resources (e.g. attention) to these novel and challenging experiences (Berlyne, 1960). In this way, diverse curiosity thus motivates the individual to come into contact with new stimuli and opportunities (approach-oriented). Specific curiosity involves an individual actively seeking depth in one’s knowledge and experiences with a particular stimulus or activity and involves flow-like absorption and investigative behaviours (direct and sustained attention towards interesting activities). These flow-like absorption and investigative behaviours result in discovery, enjoyment, and skill usage (Berlyne, 1960). Specific curiosity has been proposed by
several researchers to reduce the uncertainty and tension associated with any novel activity (Berlyne, 1960; Loewenstein, 1994). According to Berlyne (1960), diverse curiosity and specific curiosity can lead to learning and a sense of competence through the successful integration of new experiences.

The measurements of curiosity and exploration that are used in the current study are based on Berlyne’s (1960) two-dimensional approach and this conceptualisation of curiosity. Kashdan, Rose and Fincham’s inventory (2004) is based on Berlyne’s (1960) conceptualisation of curiosity. The last-mentioned researchers proposed their curiosity and exploration inventory for two reasons. Firstly, according to Kashdan, Rose, and Fincham (2004), several curiosity measures assess positive affect. This can be problematic, since the items are not unique to curiosity. Secondly, previous curiosity measures have failed to address the extent of the construct (Kashdan, Rose, & Fincham, 2004). According to Kashdan, Rose, and Fincham (2004), a number of curiosity measures use items that focus on domain-specific activities and stimuli. The consequence of including items which measure particular interests introduces non-random errors since individuals’ interests differ (Kashdan, Rose, and Fincham, 2004). All curiosity items on Kashdan, Rose, and Fincham’s (2004) measurement scale are global, thereby avoiding the problem of domain specificity. Kashdan, Rose, and Fincham’s (2004) study is also one of the studies that emphasised the importance of curiosity and exploration and their relation to positive psychological variables. Kashdan, Rose and Fincham (2004) indicated that curiosity is an affective-motivational system that facilitates positive subjective experiences and personal growth opportunities.
Factors Influencing the Arousal and Experiences of Curiosity and Exploration

Research has indicated that there are different factors influencing the arousal and experience of curiosity and exploration (Csikszentmihalyli, 1975; Erikson, 1963; Kashdan & Fincham, 2004; Litman & Jimerson, 2004; Lowenstein, 1994; Schmitt and Lahroodi, 2008). These include early personality development, interest, flow states, and pleasurable and unpleasant emotions associated with curiosity and exploration.

Early Personality Development

According to Kashdan and Fincham (2004), infants, children, and adults who feel close to significant others are more likely to explore their environment because the inherent anxiety and ambiguous activity are modulated by beliefs in being able to return to a safe comfort zone. The tendency of an individual to explore the environment is described by Erikson’s (1963) theory of psycho-social personality development. According to Erikson, one important aspect of personality development, in the first two years of the infant’s life, is the development of basic trust. The infant is totally dependent on significant others for their care taking. When the infant’s basic needs are continually met in this phase, the infant comes to trust their environment because they can depend on others to take care of them (Meyer & van Ede, 1998). As a result, the infant develops the necessary self-confidence to explore the environment. Infants that do not develop this trust, cannot depend on others. As a result, these infants would tend to protect themselves by withdrawing from others and objects (Meyer & van Ede, 1998). According to Litman and Spielberg (2003), considering individual differences in personality is therefore important, since these differences originate in the arousal of different emotional-motivational states related to curiosity.
Interest

According to Schmitt and Lahroodi (2008), a feeling that is commonly described is having one’s attention drawn to the topic of one’s curiosity. In addition to one’s attention, curiosity does however require a desire to know something about the topic (Schmitt & Lahroodi, 2008). The desire to know the topic starts with attention, and in turn, this attention is sustained by the desire for knowledge (Schmitt & Lahroodi, 2008). Curiosity is needed to sustain an intense attention in a topic. Schmitt and Lahroodi (2008), however, argue that it does not seem necessary that one’s attention should initially be drawn to the topic in any specific way. According to Schmitt and Lahroodi (2008), curiosity can also develop one’s interest in topics (with no prior interest having existed in that topic), thus implying the relative independence of curiosity. Part of the value of curiosity, therefore, lies in the way it motivates investigation into topics that then become interesting – thereby deepening one’s knowledge of the topic of interest (Schmitt & Lahroodi, 2008). Curiosity thus broadens attention and ultimately practical and epistemic interest (Shmitt & Lahroodi, 2008). This independence of curiosity is thus most beneficial when there is a lack in practical and epistemic interest (Schmitt & Lahroodi, 2008). Schmitt and Lahroodi (2008) write that when curiosity is satisfied as one comes to know the topic, the desire to know comes to an end, and the attention is no longer sustained by that desire.

Flow states

Related to the issue of having one’s attention drawn to a topic, is Csikszentmihalyli’s (1975) investigation and development of the terms flow and optimal experience. When an individual’s energies and abilities are fully engaged in challenging activities, optimal experience arises. Csikszentmihalyli also refers to these optimal experiences as flow states. Csikszentmihalyli (1975) defines flow as follows:
Flow denotes the holistic sensation present when we act with total involvement…It is the state in which action follows upon action, according to an internal logic which seems to need no conscious intervention on our part. We experience it as a unified flowing from one moment to the next, in which we feel that we are in control of our actions, and in which there is little distinction between the self and the environment; between stimulus and response; or between past, present and future (p. 43).

Flow is equivalent to specific curiosity (Fredrickson, 1998). According to Kashdan, Rose and Fincham (2004), people in flow experience clear, immediate goals, maintain deeply focused concentration, and feel a strong sense of personal control. According to Csikszentmihalyli (1990), the ability to ignore non-essential information and become absorbed in specific novel activities is necessary when experiencing pleasure. The absorption part of flow is proposed to be central to curiosity (Kashdan, Rose & Fincham, 2004).

Recent evidence, however, has also suggested that curiosity can become pathological. According to Schmitt and Lahroodi (2008), curiosity can become obsessive. A desire for knowledge of a specific topic to the exclusion of any other knowledge, irrelevant and petty detail, or complete knowledge of a topic may be referred to as pathologies of obsession (Schmitt & Lahroodi, 2008). According to Kashdan, Rose and Fincham (2004), excessive curiosity may have aversive outcomes, as has been shown to be associated with excessive sexuality, morbid fascination, gambling, substance use, and other delinquent, risky, and dangerous acts associated with sensation-seeking. These obsessions are pathological for the following reasons: there are limitations to the effort one can expend in acquiring knowledge; and if one is concerned with petty detail, this will prevent one from inquiring into a suitably broad range of topics or from inquiring about relevant topics that are of specific importance (Schmitt & Lahroodi, 2008).
Emotional Experiences

Litman and Jimerson (2004) theorise that there are individual differences in the kinds of emotions people experience when their curiosity is aroused. These emotions can reflect pleasurable feelings of interest and also unpleasant experiences of uncertainty. It is believed by some researchers that the pleasure of curiosity is derived from reducing ambiguity and uncertainty (Lowenstein, 1994). The rewards of curiosity also appear to emerge from the process of integrating diverse and complex information and experiences (Kashdan, Steger & Breen, 2007). According to Kashdan, Rose and Fincham (2004), the positive affective quality of curiosity is intrinsically reinforcing. Kashdan, Rose and Fincham (2004) hypothesise that the greatest rewards come from the process of integrating novel and challenging experiences rather than the affect related with them. Berlyne (1971) proposed that complex phenomena activate a ‘reward system’ that gives rise to positive affects. This reward system, in turn, reinforces the seeking of complex information and experiences. The positive affective quality of curiosity is thus intrinsically reinforcing (Kashdan, Rose & Fincham, 2004). However, according to Berlyne (1971), highly novel and complex experiences may also activate an aversion system and may ultimately lead to avoidance. According to Kashdan, Steger and Breen (2007), high levels of novelty, complexity, uncertainty, and conflict can lead to undesirable feelings of anxiety and confusion, whereas moderate levels appear to be ideal for creating and sustaining curiosity. Curiosity will be destabilised if these activities are too difficult and complex, evoking anxiety and withdrawal, or are too easy, leading to boredom or apathy (Kashdan & Fincham, 2004). To increase the likelihood of heightened curiosity, the challenge of activities should equal or slightly exceed the individual’s abilities (Kashdan & Fincham, 2004).
Furthermore, Litman and Jimerson (2004) drew distinctions between curiosity as a feeling of interest (CFI) and curiosity as a feeling of deprivation (CFD). If individuals only recognize the possibility for enjoyment in learning something new, then CFI will be stimulated. By contrast, if individuals perceive themselves as suffering a deficiency of new information, CFD reactions will become aroused (Loewenstein, 1994; Loewenstein, Adler, Behrens & Gillis, 1992). However, Litman and Jimerson (2004) found that CFD reactions were clearly less aversive than Loewenstein (1994) had hypothesized. Nevertheless, CFI is assumed to positively reinforce exploratory behaviour and bring pleasure by increasing stimulation, whereas CFD is hypothesized to negatively reinforce exploration, as it involves pleasure derived from reducing tension (Loewenstein, 1994). Loewenstein (1994) described CFD as an impulse to obtain new information which is accompanied by feelings of uncertainty and tension. Acquiring factual knowledge or solving problems is hypothesized to reduce these feelings (Litman & Jimerson, 2004). Loewenstein (1994) proposed another difference between CFI and CFD. Individuals who experience CFD reactions often remain dissatisfied after they have obtained new information that seems inadequate, whereas the arousal of CFI, which involves positive stimulation, may be enjoyable, regardless of whether any information is obtained. Litman, Hutchins and Russon (2005) found that exploration is more strongly motivated when the goal is to reduce feelings of uncertainty rather than to increase feelings of interest.

Whether or not the pleasure of curiosity is derived from reducing ambiguity and uncertainty or to explore that in which an individual is interested, curiosity may involve heightened states of stimulation and very positive emotions for some (Litman and Jimerson, 2004). Some researchers however, state that curiosity can be distinguished from other positive emotions (Kashdan, Steger & Breen, 2007; Kashdan & Silvia, 2009). Curiosity as a positive experience is not the same as
positive experiences, such as enjoyment, positive affect or wellbeing (Kashdan & Silvia, 2009). It differs from the latter experience as it has different functions (Kashdan & Silvia, 2009). What makes curiosity different from other positive experiences is that it involves a strong desire to explore that in which an individual is interested. According to Kashdan and Silvia (2009), curiosity could therefore be placed in the category of knowledge emotions. Emotions such as interest, surprise, and confusion that are associated with learning and thinking, are contained in the category, knowledge emotions (Kashdan & Silvia, 2009).

**Curiosity and Exploration in Context**

Curiosity and exploration in a relevant context, namely the educational setting, the social setting, and positive psychology will be discussed next.

**Curiosity, Exploration, and the Educational Setting**

According to Kashdan, Steger and Breen (2007), curiosity is psychologically necessary for a person’s regular success in learning and discovery. It has been found that more curious people tend to perform better in academics and work and they also adjust better to changes in the work environment (Kashdan, Steger & Breen, 2007). The reason for this is that the tendency of curiosity is to recognise and seek out novel experiences, and yet remain open to a variety of thoughts, perspectives, and ideas that facilitate learning, the stretching of skills and knowledge (Kashdan & Yuen, 2007). Furthermore, when people are curious, they are also more attentive; they process information at a deeper level, they maintain information better, and are more likely to endure in the accomplishment tasks until their goals are met (Sansone and Smith, 2000; Schiefele, 1999). The immediate function of curiosity is to learn, explore, and throw oneself into initially interesting events. In the longer term, curiosity functions to build knowledge and skills (Tracey, 2002). It has also been shown that curiosity can motivate and sustain interest in
important, but boring activities (Kashdan, Steger & Breen, 2007). Attempts to self-generate curiosity in everyday activities can lead to sustained motivation, increased efforts and better performance levels (Kashdan, Steger & Breen, 2007).

Research however, indicates that contextual factors tend to moderate whether curious individuals thrive in academic settings (Kashdan & Silvia, 2009). Perceptions of supportiveness and threat (e.g. perceiving people as threatening or non-responsive, insecure relationships, and being situated in less-enriching environments in educational setting), affect whether people feel curious, explore, and derive the benefits of exploratory behaviours (Kashdan & Silvia, 2009).

Feelings of comfort and safety encourage exploratory behaviour which can lead to the expansion of personal resources (Kashdan & Fincham, 2004). The feeling of belonging functions as a resource which can motivate an individual to approach risks and pursue and persist in novel and challenging activities (Kashdan & Fincham, 2004). Supportive environments facilitate feelings of autonomy and the autonomy-supportive behaviour of significant others has clear, positive effects on curiosity (Kashdan & Fincham, 2004). For example, appropriate and honest praise (informational positive feedback) gives rise to a feeling of competence (Deci, Koestner & Ryan, 1999). Competence-related beliefs are proposed to cause individuals to perceive activities as challenges, as opposed to threats (Kashdan & Fincham, 2004). Competency beliefs appear to be the primary mechanism for experiencing high-task curiosity and persistence, increasing the likelihood of achievement and success (Kashdan & Fincham, 2004). Furthermore, strong competence-related beliefs can be expected to minimise the disruptive influences of self-consciousness and fears of negative evaluation, and to increase feelings of control and task absorption (Kashdan & Fincham, 2004). For example, when significant others (e.g. parents, teachers, supervisors) are perceived to be sensitive and
responsive, concerns about impressing others and being accepted are minimised (Kashdan & Fincham, 2004).

In contrast, threatening and unsupportive environments, such as threats, punishments, negative feedback, and surveillance can thus smother curiosity and exploratory behaviours (Peters, 1978). External pressures are experienced as intrinsically controlling and tend to result in extrinsic motivation or task disengagement, both of which have adverse effects on performance-related outcomes (Peters, 1978).

Person-environment fit approaches stipulate that people’s adjustment increases when the environment provides the challenges and support structure to satisfy specific needs and competencies (Kristof, 1996; Pervin, 1986). People perform best in contexts that are a better fit with their habitual behavioural tendencies, and worst in contexts that are contrary to these tendencies (Kashdan & Yuen, 2007). People thus derive the most positive experiences in environments that are a better fit with their dominant personality traits, and the most negative experiences when they are in environments that do not fit their personality traits (Pervin, 1986).

For example, research indicates that curious people perform better in school and work environments that provide opportunities to develop knowledge and skills, providing intellectual challenges, and that are open to new ideas (Harms, Roberts & Winter, 2006; Wanberg & Banas, 2000; Wanberg & Kammeyer-Mueller, 2000).

Research in school settings has demonstrated how contextual factors or the person-environment fit, moderate curiosity and exploratory behaviour (Kashdan & Yuen, 2007). School environments supporting students’ desires to be autonomous learners are positively related to student motivation (effort, persistence, coping) - in turn, facilitating engagement and interest, which directly leads to better academic success (Skinner, Wellborn & Connell, 1990). For
highly curious students, their academic motivation stems mainly from an intrinsic desire to access novel and challenging experiences and learn from them (Loewenstein, 1994). This notion is supported by Zion and Sadeh (2007) who found that curious students prefer to use learning environments which are characterized by greater uncertainty. Highly curious students in these desirable academic environments are likely to feel energised, allowing them to continue facing challenges (Kashdan & Yuen, 2007). In less-challenging schools, highly curious students lack access to the learning opportunities they long for (Sansone & Smith, 2000). In this sub-optimal situation, skills may far exceed the demands of the environment which can lead to disengagement (i.e. apathy, boredom) (Sansone & Smith, 2000). These person-environment mismatches can lead to quick declines in motivation and performance (Kashdan & Yuen, 2007).

From the above discussion, it became evident that social networks are of significance in the educational setting. Psychologists-in-training may not only be a part of a family system, but are also in contact with peers, supervisors, lecturers, and university institutions. For this reason, curiosity and exploration are best considered in their social settings.

Curiosity, Exploration, and Social Settings

The building and use of social networks and relationships has been suggested as a central human task, and social curiosity is considered to serve an important function in this regard (Pickett, Gardner, & Knowles, 2004). One fundamental requirement of human relationships appears to involve an interest in how other people, behave, think, and feel (Renner, 2006). This is in line with Foster (2004), who stated that in order to function efficiently in a changing and complex social environment, humans require information about those around them. However, interest in new social information and exploratory behaviours might be modulated by traits that
either inhibit social interactions and socialization (e.g., neuroticism, social anxiety) or facilitate them (e.g., social competences, extraversion) (Mallinckrodt & Wei, 2005).

Research has shown that curiosity can facilitate the development of close relationships (Kashdan & Roberts, 2004). People who are interpersonally curious seem to be more likely to be socially competent, sociable, and be able to build networks of relationships that provide support in the face of stressful life events (Renner, 2006). Evidence suggests that more curious individuals tend to have better relationships with others in school, work, and other settings (Kashdan, Steger & Breen, 2007). Furthermore, socially curious individuals might be skilful in adjusting their own behaviour to successfully form new relationships and maintain existing ones (Kashdan, Roberts, 2004).

In contrast, individuals with poor social relations, as indicated by low levels of social support and low levels of agreeableness, may be less motivated and may have fewer opportunities to acquire social information (Renner, 2006). Kashdan and Roberts (2004) proposed that low levels of curiosity can be expected to inhibit the development of close relationships. Previous studies have shown that high levels of social anxiety tend to inhibit trait curiosity (Kashdan, 2002). An alternative perspective assumes that anxiety impacts the strategies people use to satisfy their curiosity rather than the desire for new information or experiences (Trudewind, 2000). According to Renner (2006), this might imply that high socially anxious individuals might be as curious as low socially anxious individuals, but show less social exploration (Renner, 2006).

Curiosity, Exploration, and Positive Psychology

The current research is concerned with possible resilience factors that facilitate professional development or growth in psychologists-in-training. This includes the level of curiosity and
exploratory behaviour and how they have dealt with uncertainty. Evidence suggests that curiosity has been associated with a wide variety of important positive psychological outcomes.

Some researchers stress that curiosity is crucial and forms the basis of an evolutionary drive for the individual species to adapt and to survive (Bruner, 1966). By nature then, human beings are curious to find ways to solve problems (Reio, Petrosko, Wiswell & Thongsukmag, 2006). Curiosity stimulates exploratory behaviour to adapt to changing environmental conditions (Voss & Keller, 1983). Furthermore, research suggests that curiosity and exploratory behaviour fosters cognitive, spiritual, psychological, and physical development over the lifespan (e.g. Berlyne, 1960; Loewenstein, 1994). Individuals seek to develop themselves by diverse means, for example, gaining knowledge, information, and wisdom, to gain a better understanding of themselves and to assist in forming relationships across the life span. It is thus understandable that research has shown that curiosity is significant for nearly all human activity (e.g. work, sport, relationships, and therapy) (Kashdan, Steger & Breen, 2007).

Furthermore, research suggests that curious individuals are more selective of and responsive to activities that are personally and socially inspiring, resulting in the development of resilient psychological resources (Silvia, 2006). By being curious, individuals try new things and behave outside of their comfort zone. This appears to increase tolerance for distressing states of self-awareness (Kashdan, 2007). Individuals with high curiosity levels may be more likely to benefit from personal and social resources when confronted with life stress (Kashdan, Rose & Fincham, 2004). Another benefit of being curious is that it involves greater tendencies to be approach-oriented (and not avoidance-oriented) when confronted with novel, uncertain, and complex activities (Kashdan, Steger & Breen, 2007).
Finally, curiosity has been associated with a wide range of desirable psychosocial variables and ultimately personal growth. These include greater wellbeing, meaning in life, intelligence, creativity, critical thinking, problem-solving skills, goal effort and progress, preference for challenge in work, perceived control, less perceived stress, less negative emotions and expanding knowledge, skill and competence (Kashdan & Fincham, 2002; Kashdan & Silvia, 2009; Kashdan, Steger & Breen, 2007). Kashdan, Rose and Fincham (2004) and Kashdan and Fincham’s (2002) findings indicate that being curious is associated with: positive subjective experiences; positive evaluations of the self, world, and future; beliefs that goals are attainable and obstacles can be circumvented; general tendencies to enjoy effortful cognitive endeavours, and to be open to new experiences and ideas. It is furthermore associated with self-determined tendencies to recognise, pursue, and thrive in pleasure, excitement, and challenge; and it appears to be a fundamental motive in facilitating creativity under the right conditions (Kashdan & Fincham, 2002; Kashdan, Rose & Fincham, 2004). Curiosity is also negatively related to social anxiety, boredom, anxiety, and apathy, which have all been shown to frustrate attention and learning (Kashdan, Rose & Fincham, 2004).

Kashdan, Rose, and Fincham (2004) introduced the process initiated by curiosity, proposed to lead to personal growth. The process includes: (a) an increase in attention allocation to look into and orient oneself toward novel and challenging stimuli; (b) cognitive and behavioural exploration of rewarding stimuli; (c) flow-like engagement with rewarding stimuli and activities; and (d) integration of novel experiences. When one’s personal skills are congruent with the challenges with which one is confronted (flow states), this results in the “stretching” of skills and confidence in using these skills and thereby an expected sense of personal growth.
Conclusions

Evidence suggests that uncertainty motivates curiosity and exploratory behaviours (Berlyne, 1974; Boykin & Harackiewicz, 1981; Kashdan, Rose & Fincham, 2004). However, there exist individual differences in whether people become curious and engage in exploratory behaviour (Csikszentmihalyli, 1975; Erikson, 1963; Kashdan & Fincham, 2004; Litman & Jimerson, 2004; Lowenstein, 1994; Schmitt and Lahroodi, 2008). Individuals may differ in the kind of emotions they experience as a reaction to curiosity, such as unpleasant feelings of uncertainty or pleasurable feelings of interest (Litman & Jimerson, 2004). Furthermore, evidence suggests that certain educational environments can either facilitate or inhibit curiosity (Kashdan & Fincham, 2004; Kashdan & Silvia, 2009). For example, supporting environments will facilitate curiosity, whereas threatening environments can hamper curiosity and exploratory behaviour (Peters, 1978). In addition, person-environment fits also influence curiosity and exploratory behaviour in either a facilitating or inhibiting way (Kristof, 1996; Pervin, 1986). Highly curious individuals, for example, prefer more challenging environments (Kashdan & Yuen, 2007).

Regarding curiosity in social settings, it became evident that social curiosity strengthens relationship networks which can serve a supportive function in times of adversity (Renner, 2006). This is of relevance in the context of the current study since psychologists-in-training are directly involved with social structures which are also related to educational settings.

Lastly, curiosity and exploration have been associated with a wide variety of positive psychological variables, such as wellbeing and personal growth (Kashdan & Fincham, 2002; Kashdan & Silvia, 2009; Kashdan, Steger & Breen, 2007). The current study is therefore concerned with determining the levels of curiosity and exploration in psychologists-in-training, as well as how they have dealt with their uncertainties during their professional development.
CHAPTER 4

Research Design and Methodology

Research Design

A mixed method of exploratory descriptive design that includes both quantitative and qualitative methods was used in this study as it offered the best opportunity for answering the specific research questions (Johnson & Onwuegbuzie, 2004). The mixed method of exploratory descriptive design makes use of a questionnaire that includes a rating scale for the quantitative data collection and one open-ended question for the qualitative data collection. A quantitative approach was employed to measure and describe the level of curiosity and exploration of psychologists-in-training (Tredoux & Smith, 2006). This approach allowed quantitative predictions to be made; data collection was relatively quick; it provided precise numerical data; and the research results were fairly independent of the researcher (Johnson & Onwuegbuzie, 2004). The inclusion of a qualitative approach allowed the researcher to investigate relatively unknown aspects of how psychologists-in-training have dealt with their uncertainties, and to understand the dynamics thereof. This allowed the researcher to produce an in-depth, holistic or complex understanding and descriptions of how psychologists-in-training have dealt with their uncertainty (Gay, Mills & Airasian, 2006; Heppner & Heppner, 2004; Johnson & Onwuegbuzie, 2004; Maxwell, 1996).

By using a mixed method of exploratory, descriptive design, the researcher combined insights and procedures from both approaches to produce an enriched study (Johnson & Onwuegbuzie, 2004). The use of both quantitative and qualitative research approaches enabled the researcher to: triangulate findings, to offset the inherent weaknesses of quantitative and qualitative research and to draw on their strengths, as well as to create a more comprehensive account of the area of
inquiry (Bryman, 2006). In addition, the quantitative research provided an account of structures in social life, while the qualitative research provided a sense of process. Furthermore, the qualitative data could be used to illustrate quantitative findings (Bryman, 2006). The researcher adopted a theoretical lens, namely positive psychology, as an overarching perspective within the design that contained both quantitative and qualitative data (Creswell, 2003). This lens provided a framework for the topic of interest, the methods for collecting the data, and the outcomes anticipated by the study (Creswell, 2003).

**Ethical Considerations**

The research proposal was submitted to the Ethics Committee (Human) of the Nelson Mandela Metropolitan University (NMMU) and ethical approval was obtained. In this study, the ethical code of the Nelson Mandela Metropolitan University was strictly adhered to, namely (a) all participants were informed about the nature, goals, and possible advantages of this research; (b) participants were free to choose not to participate in the study; (c) participants gave informed consent; this included permission to audio tape interviews; (d) participants’ anonymity was guaranteed in that all material and data were dealt with confidentially at all times; (e) the research had no known risks or anticipated discomfort for any of the participants; (f) general written feedback would be given to participants on completion of the study should they request it; and (g) data-gathering was performed under the supervision of a qualified psychologist.

**Research Procedure**

This research proposal was presented to the Faculty Research, Technology and Innovation (FRTI) and the Ethics Committee (Human) of Nelson Mandela Metropolitan University for approval. Once the proposal was approved, the researcher contacted the Master’s co-ordinators of three South African universities to request permission to recruit their first and second-year
psychology Masters’ students as potential participants for this research. The nature, duration, and the possible advantages of the research were discussed and informed consent was obtained from the Masters’ programme coordinators of the universities (Appendix A). A letter showing that the potential participants were asked to participate in the research study, as well as ethical considerations, was sent to the Master’s programme coordinators of the universities, as well as the potential participants prior to their participation (Appendix B). Once the participants were identified, the Masters’ programme coordinators, and in one case a lecturer, were approached to determine dates and times that suited both the participants and the researcher to complete the Curiosity and Exploration Inventory (CEI) (Kashdan, Rose & Fincham, 2004), as well as the semi-structured interviews. The researcher travelled to the three universities on selected dates and times and obtained informed consent from the participants, who were willing to participate before the commencement of data collection (Appendix C). Selected participants completed the CEI and participated in the semi-structured interviews. The interviews were audio-recorded, as this ensured that important information was not lost during the interviews, and it also allowed the interviewer to concentrate on the conversation rather than attempting to document the dialogue (Willig, 2001). The quantitative data obtained from the CEI were analyzed by the Department of Statistics from the Nelson Mandela Metropolitan University (NMMU). The audio-recordings from the semi-structured interviews were transcribed by the researcher for subsequent analysis. After the data had been analysed and evaluated, the findings were integrated into the treatise.

Participants and Sampling

This is a study of limited scope and therefore all the data were collected by means of purposive-availability sampling (Durrheim & Painter, 2006). Purposive-availability sampling does not depend only on availability and the willingness to participate, but is also composed of
cases that were typical of the target population, in this case, psychologists-in-training (Durrheim & Painter, 2006). The researcher therefore approached universities that offer the Master’s programme for training in clinical and counselling psychology, that were willing to participate in this research, and those that were more accessible and available to the researcher. Participants from the Nelson Mandela Metropolitan University (NMMU), the University of Johannesburg (UJ), and North-West University (NWU) participated in the current study. The researcher selected three universities in order to allow for maximum geographical variation. The aim of maximum variation was to obtain a broad range of information and perspectives (Kelly, 2006).

Purposive sampling was used (Durrheim & Painter, 2006) to gather the data through questionnaires from the participants. At least 30 participants were required for the analysis of the CEI questionnaire (Durrheim & Painter, 2006). Six participants that were participating in the quantitative data collection were selected to participate in the qualitative data collection based on their availability (Heppner & Heppner, 2004). Criteria for inclusion stipulated that participants must be able to speak and understand English, must be in their first or second year of the Master’s programme in clinical or counselling psychology, and must have experienced some degree of uncertainty regarding their professional development as psychologists. The researcher included six participants from the three universities (NMMU, UJ, NWU) to conduct the semi-structured interviews. The sample consisted out of three males and three females from the first and the second year of the Master’s programme. This provided sufficient cases to examine similarities and differences between the different cases, but not to overwhelm the researcher with the amount of data gathered (Kelly, 2006; Smith, 2003). However, the researcher ensured that sufficient data were gathered to achieve saturation by having a clear sense of what conclusions could be drawn from the data analysis (Durrheim & Painter, 2006).
Data Collection

Both the quantitative and qualitative data were collected concurrently (Creswell, 2003). Collecting data concurrently enabled the researcher to converge the quantitative and qualitative data in a comprehensive analysis of the research problem. The researcher collected both forms of data at the same time, after which the information was integrated in the interpretation of the overall results (Creswell, 2003).

The quantitative data were collected by means of the CEI (Appendix D) (Kashdan, Rose & Fincham, 2004). The CEI is a self-report instrument assessing individual differences in the recognition, pursuit, and integration of novel and challenging experiences and information. The CEI is a seven-item measure with two distinct but related components of curiosity, namely exploration and absorption (Kashdan, Rose & Fincham, 2004). Exploration refers to appetitive strivings for novel and challenging information, and experiences. Absorption refers to the propensity to be deeply engaged in activities. Respondents were required to rate items using a 7-point Likert-type scale that took approximately two minutes to complete. One item is reversed scored. The CEI was designed to avoid any context dependency (Kashdan, Rose & Fincham, 2004).

The qualitative data were gathered using semi-structured face-to-face interviews (Polit & Beck, 2004), as this research was concerned with how psychologists-in-training dealt with uncertainty in their professional development. This issue is far too complex to be investigated by a questionnaire alone (Burman, 1994). An interview gave the researcher the opportunity to get to know participants, in order to really understand how they thought and felt (Kelly, 2006). The following open-ended question was put to the participants during their interviews: “Please tell me how you have dealt with uncertainties you experienced in your professional development as a
psychologist”. The purpose of the open-ended question was to enable the participants to talk freely about the topic in their own words and to give participants an opportunity to provide rich, detailed information (Polit & Beck, 2004). The open-ended question was supported by probes (e.g., How did supervision help you deal with your uncertainty?). It was also designed to elicit more detailed information when this was considered to be necessary (Pilot & Beck, 2004). The interviews were audio-taped and transcribed to enable easier referencing to different parts of the interview. This allowed the researcher to attain an increasingly clear image of the interviews as a whole (Kelly, 2006).

**Data Analysis**

The data were analysed, using Onwuegbuzie and Teddle’s (2003) mixed-method data analysis. The data analysis involved: data reduction, which involved reducing the dimensionality of the qualitative (thematic content analysis) and the quantitative data (descriptive statistics); data displays which described pictorially the qualitative and the quantitative data (tables); qualitative display of the quantitative data which were analysed qualitatively; and data integration, whereby both the quantitative and qualitative data were integrated into two separate sets (e.g. qualitative and quantitative) of coherent wholes and integrated in the final discussion.

The quantitative data collected by means of the CEI were analysed by means of descriptive statistics (Durrheim, 2006). Frequency distributions, median, mean, standard deviations, cut point scores, and alpha coefficients were calculated and analysed by the Department of Statistics of the Nelson Mandela Metropolitan University. The qualitative data were analysed using thematic content analysis (Hsieh & Shannon, 2005). Each of the transcribed interviews was read through entirely to identify potential categories. These broad categories were sorted into themes.
The data were then analysed according to the eight steps of data analysis, as outlined by Henning, van Rensburg and Smit (2004). These included: (a) a thorough reading through and making notes of all transcribed material; (b) considering the substance of the interviews conducted and looking for the underlying meaning; (c) clustering the topics; (d) using a clustered list, and once again considering the data; (e) coding the topics and correlating the coding with the data; (f) elaborating on the topics with the aim of turning them into certain categories and determining their interrelationship; (g) making a final decision on the coding of the categories; and (h) recoding the existing data if necessary.

Validity and Reliability of the Quantitative Data

The researcher selected participants from a target population and therefore the quantitative findings are applicable to the selected participants of this study (Gay, Mills & Airasian, 2006; Tredoux & Smith, 2006). The researcher did not aim to generalise the findings, but relied on the transferability of the findings from this study to similar settings (Gay, Mills & Airasian, 2006). The researcher therefore did not intend to restrict the quantitative findings only to the selected participants, but to transfer the findings to psychologists-in-training. In order to enhance the range and diversity of participants, the researcher selected participants from three universities to compose the sample of psychologists-in-training (Kelly, 2006; Tredoux & Smith, 2006). Furthermore, in order to maximise the application of the findings to the population of psychologists-in-training, a detailed description of the participants was of the utmost importance (Tredoux & Smith, 2006).

Lastly, the psychometric properties of the CEI have previously been shown to deliver good quality reliability and internal validity (Kashdan, Rose & Fincham, 2004). This implies that the CEI measures what it intends to measure with consistency (Foxcroft & Roodt, 2001). The CEI
has been shown to have an internal reliability of 0.63 to 0.80 and good incremental validity (Kashdan, Rose & Fincham, 2004). Furthermore, test-retest reliability was found to be high for the CEI-Exploration, \( r = 0.78, p < 0.001 \), and CEI-Absorption, \( r = 0.74, p < 0.001 \). Construct validity has been shown in factor-analysis studies (Kashdan, Rose & Fincham, 2004). In this proposed study, the reliability of the CEI was assessed after data collection by means of calculating the Cronbach alpha internal reliability coefficient.

**Trustworthiness of the Qualitative Data**

Different strategies for ensuring credibility, transferability, dependability and confirmability (Lincoln & Guba, 1985) of the qualitative data were applied. Table 4.1 illustrates these strategies.

**Table 4.1: Strategies to ensure trustworthiness**

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Criterion</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credibility</td>
<td>Authority of the researcher</td>
<td>The researcher is trained in research methodology. A professor in psychology with extensive experience in qualitative research supervised the study.</td>
</tr>
<tr>
<td></td>
<td>Reflexivity</td>
<td>Reflective field notes were kept by the researcher, tracking the influence of the researcher’s assumptions and biases in the study.</td>
</tr>
<tr>
<td></td>
<td>Peer examination</td>
<td>The researcher made use of an independent coder to code the data.¹</td>
</tr>
</tbody>
</table>

¹ Table continues on the next page
<table>
<thead>
<tr>
<th>Transferability</th>
<th>Dense description</th>
<th>A complete description of design, methodology, and literature control, allowed for transferability judgements to be made by others if they wished to do so.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominated sample</td>
<td>The sampling method was purposive with no prior selection.</td>
<td></td>
</tr>
<tr>
<td>Dependability</td>
<td>Thick description</td>
<td>In this study participants engaged in individual interviews which provided the opportunity for different perspectives from psychologists-in-training to be determined.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The research methodology was fully described to allow for replication of the study.</td>
</tr>
<tr>
<td>Confirmability</td>
<td>Triangulation</td>
<td>Triangulation refers to the use of a variety of data and theories in the same research in order to facilitate richer and potentially more valid interpretations (Tuckett, 2005).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research approaches that include different methods of data collection were used, namely, individual interviews, and a questionnaire (method triangulation) (Kelly, 2006).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple perspectives were used to interpret a single set of data and research findings (theory triangulation) (Kelly, 2006).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data were continuously analysed by the researcher and an independent coder to provide space for different perspectives aimed at reaching consensus through discussion (investigator triangulation) (Kelly, 2006).</td>
</tr>
</tbody>
</table>
Conclusions

A mixed-method exploratory descriptive design that made use of both questionnaires and individual interviews was used in the current study (Johnson & Onwuegbuzie, 2004). The CEI was used to explore and describe the level of curiosity and exploration (Kashdan, Rose, & Fincham, 2004), while interviews were conducted to explore and describe strategies for dealing with uncertainty amongst psychologists-in-training during their professional development (Polit & Beck, 2004). Participants were selected from three South African Universities using purposive availability sampling. The data were analysed using Onwuegbuzie and Teddlie’s (2003) mixed-method data analysis. Analysis of the data as separate coherent wholes included descriptive statistics to analyse the quantitative data and thematic content analysis to analyse the qualitative data. Previous research has shown good validity and reliability for the CEI (Kashdan, Rose & Fincham, 2004), and the reliability was also calculated in the current study. To ensure trustworthiness of the qualitative data, four strategies were applied, namely: credibility (authority of the researcher, reflexivity, and peer examination); transferability (dense description and nominated sample); dependability (thick description); and confirmability (triangulation) were thus applied (Kelly, 2006; Lincoln & Guba, 1985; Tuckett, 2005).
CHAPTER 5
Results and Discussion

Results

The sample characteristics will be described (Table 5.1). The quantitative results of the CEI are presented as a separate coherent whole in table format (Tables 5.1 - 5.4). The CEI items are then qualitatively displayed (Table 5.5) along with frequency distributions of each CEI item (Table 5.6) which are then presented to identify the percentage of participants that agreed with each CEI item (Table 5.7). The qualitative findings, namely strategies for dealing with uncertainty amongst psychologists-in-training are then presented as a separate coherent whole (Table 5.8). Both quantitative and qualitative findings are then separately discussed, as well as integrated in the final discussion.

Data Reduction and Display

Table 5.1 displays the descriptive statistics of the sample characteristics and the CEI. In the current study, a total of 50 participants from the three universities completed the questionnaire. Participants’ ages ranged from 22 to 38 years of age. The mean age was 25.90 with a standard deviation of 4.07. From the 50 participants, 16 (32%) were male and 36 (68%) female, 31 (62%) of participants were first-year Master’s students and 19 (38%) were second-year Master’s students.

Responses on the CEI were based on a 7-point Likert scale with three descriptors: 1 (strongly disagree), 4 (neither agree nor disagree), and 7 (strongly agree). Scores are presented according to the two subscales of the CEI, namely Exploration and Absorption, as well as the total CEI score. The means (M) and standard deviations (SD) for all the quantitative data are
reported. The internal consistencies (Cronbach α) of each subscale and the total score are also presented.

The M score for the Exploration subscale is 5.52 and the SD score is 0.94. This implies that the average score (5.25) for this group is higher than the CEI scale midpoint (4) with an estimated variability of 0.94 around the average score. On the Absorption subscale, results indicate an M of 4.75 and a SD of 1.21. The average score for this group on the Absorption subscale is thus slightly higher (4.75) than the scale midpoint (4) with an estimated variability of 1.21 around the average score. The total CEI M is 5.13, with a SD of 0.86. The total average score for the CEI is higher than the scale midpoint, with an estimated variability of 0.86 around the average score.

The Cronbach α for the Exploration subscale is 0.75 and for the Absorption subscale it is 0.69. These two internal reliabilities are in the acceptable range (0.65 or higher for groups) (Foxcroft & Roodt, 2005). The internal reliability of the CEI total score is however low, with a value of 0.41. Previous research, however, indicated CEI total internal reliability scores which were in the acceptable (0.83) range (Kashdan & Steger, 2007). This low value that has been obtained in the current study may possibly be affected by ability level and measurement error (Foxcroft & Roodt, 2001). According to Foxcroft and Roodt (2001), it is desirable to calculate reliability coefficients separately for homogeneous sub-groups, such as gender and age to minimise ability error. Furthermore, the reliability may have been affected by contextual factors. The way participants interpreted the CEI items may have resulted in measurement error which could account for the low total CEI internal reliability score. Participants, for example, reported higher scores on the Exploration subscale than on the Absorption subscale. This difference in results for the two subscales will, however, be discussed and interpreted later.
### Table 5.1

Descriptive statistics for the Curiosity and Exploration Inventory

<table>
<thead>
<tr>
<th>Descriptive data</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>16</td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
</tr>
<tr>
<td><strong>Level of training</strong></td>
<td></td>
</tr>
<tr>
<td>First-year Master’s students</td>
<td>31</td>
</tr>
<tr>
<td>Second-year Master’s students</td>
<td>19</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>25.90</td>
</tr>
<tr>
<td>$SD$</td>
<td>4.07</td>
</tr>
<tr>
<td>Range</td>
<td>22-38</td>
</tr>
<tr>
<td><strong>Exploration subscale</strong></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>5.52</td>
</tr>
<tr>
<td>$SD$</td>
<td>0.94</td>
</tr>
<tr>
<td>$\alpha$ Coefficient</td>
<td>0.76</td>
</tr>
<tr>
<td><strong>Absorption subscale</strong></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>4.75</td>
</tr>
<tr>
<td>$SD$</td>
<td>1.21</td>
</tr>
<tr>
<td>$\alpha$ Coefficient</td>
<td>0.69</td>
</tr>
</tbody>
</table>
CEI total score

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>5.13</td>
</tr>
<tr>
<td>SD</td>
<td>0.86</td>
</tr>
<tr>
<td>α Coefficient</td>
<td>0.41</td>
</tr>
</tbody>
</table>

In order to establish the level of curiosity and exploration in psychologists-in-training, cut point scores of the CEI 7-point Likert scale were calculated with the aim of developing three descriptive intervals, namely low, moderate, and high in order to compare the results. As seen in Table 5.2, the first cut-point score (low) for the Exploration and Absorption subscales and the CEI total score is 2.70, the second cut-point score (moderate) is 5.29 and the range between 5.30 and 7.00 is described as being high.
Table 5.2

Cut-Point Scores Derived from the 7-point Likert Scale Items

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>1.85</td>
<td>Low</td>
</tr>
<tr>
<td>1.86</td>
<td>2.70</td>
<td>Low</td>
</tr>
<tr>
<td>2.71</td>
<td>3.56</td>
<td>Moderate</td>
</tr>
<tr>
<td>3.57</td>
<td>4.43</td>
<td>Moderate</td>
</tr>
<tr>
<td>4.44</td>
<td>5.29</td>
<td>Moderate</td>
</tr>
<tr>
<td>5.30</td>
<td>6.14</td>
<td>High</td>
</tr>
<tr>
<td>6.15</td>
<td>7.00</td>
<td>High</td>
</tr>
</tbody>
</table>

Interval gap = \( \frac{(7-1)}{7} = 0.857 \)

Table 5.3 presents the 7-point Likert scale items with their interval descriptors. A score of 1-2 falls within the low range, a score of 3-5 within the moderate range, and a score of 6-7 within the high descriptive category.
Table 5.3

Intervals for 7-point Likert Scale Items

<table>
<thead>
<tr>
<th>7-point Likert scale items</th>
<th>Interval descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>Low</td>
</tr>
<tr>
<td>3, 4, 5</td>
<td>Moderate</td>
</tr>
<tr>
<td>6, 7</td>
<td>High</td>
</tr>
</tbody>
</table>

Table 5.4 presents the frequency percentages of participants who fall within the three descriptors of low, moderate, and high for the Exploration and Absorption subscales, and the CEI total score. As seen in Table 5.4, no participants had a low level of exploration, 6% had a low level of absorption, and no participants had a low total CEI score. Scores were higher in the moderate descriptive category where 38% of participants had a moderate level of exploration, 48% had a moderate level of absorption, and 58% had a moderate total CEI score. Considering the high descriptive category, 62% of participants had a high level of exploration, 46% had a high level of absorption, and 42% had a high total CEI level.
Table 5.4

Number of Participants Scoring Low, Moderate, and High on the CEI

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Exploration</th>
<th>Absorption</th>
<th>CEI Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>0%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>Moderate</td>
<td>38%</td>
<td>48%</td>
<td>58%</td>
</tr>
<tr>
<td>High</td>
<td>62%</td>
<td>46%</td>
<td>42%</td>
</tr>
</tbody>
</table>

Table 5.5 presents each CEI item qualitatively, as well as the frequency distributions of each CEI item (Table 5.6). The CEI items are considered against the frequency distributions to identify items on which a significant number of participants agreed (Table 5.7).

Table 5.5

Qualitative display of the CEI

Descriptions of the CEI items

Exploration subscale

1. I would describe myself as someone who actively seeks as much information as I can.

3. I frequently find myself looking for new opportunities to grow as a person (e.g., information, people, resources).

4. I am not the type of person who probes deeply into new situations or things.

7. Everywhere I go, I am out looking for new things or experiences.
Absorption subscale

2. When I am participating in an activity, I tend to get so involved that I lose track of time.

5. When I am actively interested in something, it takes a great deal to interrupt me.

6. My friends would describe me as someone who is “extremely intense” when in the middle of doing something.

Table 5.6
The Number (%) of Participants Scoring on the 7-point Likert Scale of Each CEI Item

<table>
<thead>
<tr>
<th>CEI item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-point Likert scale</td>
<td>0%</td>
<td>4%</td>
<td>2%</td>
<td>0%</td>
<td>4%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>1</td>
<td>2%</td>
<td>4%</td>
<td>0%</td>
<td>6%</td>
<td>6%</td>
<td>12%</td>
<td>4%</td>
</tr>
<tr>
<td>2</td>
<td>6%</td>
<td>10%</td>
<td>2%</td>
<td>6%</td>
<td>8%</td>
<td>12%</td>
<td>4%</td>
</tr>
<tr>
<td>3</td>
<td>2%</td>
<td>10%</td>
<td>8%</td>
<td>6%</td>
<td>18%</td>
<td>10%</td>
<td>24%</td>
</tr>
<tr>
<td>4</td>
<td>34%</td>
<td>14%</td>
<td>14%</td>
<td>8%</td>
<td>18%</td>
<td>26%</td>
<td>26%</td>
</tr>
<tr>
<td>5</td>
<td>32%</td>
<td>24%</td>
<td>44%</td>
<td>56%</td>
<td>36%</td>
<td>32%</td>
<td>34%</td>
</tr>
<tr>
<td>6</td>
<td>24%</td>
<td>8%</td>
<td>30%</td>
<td>18%</td>
<td>10%</td>
<td>4%</td>
<td>8%</td>
</tr>
</tbody>
</table>
Table 5.7

Total Number (%) of Participants who Agreed and Strongly Agreed (score 5, 6, and 7) on the CEI Items

<table>
<thead>
<tr>
<th>CEI item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90%</td>
<td>46%</td>
<td>88%</td>
<td>65%</td>
<td>64%</td>
<td>62%</td>
<td>68%</td>
</tr>
</tbody>
</table>

As seen in Table 5.7, a majority of the participants agreed or strongly agreed with each CEI item. As seen in Table 5.7, 90% of the participants agreed on the first CEI item; 88% on item three; 68% on item seven; 65% of participants agreed on CEI item four; 64% on CEI item 5; 62% on item six; and the lower percentage of participants (46%) agreed on item two.

The strategies that psychologists-in-training use to deal with their uncertainties during their professional development are presented in Table 5.8. As seen in Table 5.8, seven themes and their respective subthemes emerged from the data. The themes are presented in no specific order.
Table 5.8

Strategies for Dealing with Uncertainty Amongst Psychologists-in-Training

<table>
<thead>
<tr>
<th>Themes and sub-themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervision</td>
</tr>
<tr>
<td>Clinical supervision, support, and feedback</td>
</tr>
<tr>
<td>Peer consultation</td>
</tr>
<tr>
<td>Peer support and feedback</td>
</tr>
<tr>
<td>Self-enhancement</td>
</tr>
<tr>
<td>Self-reflection</td>
</tr>
<tr>
<td>Personal therapy</td>
</tr>
<tr>
<td>Self-awareness</td>
</tr>
<tr>
<td>Self-knowledge</td>
</tr>
<tr>
<td>Theoretical knowledge</td>
</tr>
<tr>
<td>Preparation, building and reliance on theory</td>
</tr>
<tr>
<td>Learning from practical experience</td>
</tr>
<tr>
<td>Exposure and experimentation during practical work</td>
</tr>
<tr>
<td>Cognitive appraisals</td>
</tr>
<tr>
<td>Positive-thinking style</td>
</tr>
<tr>
<td>Self-confidence</td>
</tr>
<tr>
<td>Internal locus of control</td>
</tr>
</tbody>
</table>
Self-care

Social support

Use of leisure

One of the main strategies that participants used for dealing with uncertainty is to rely on supervision. One sub-theme emerged namely support and feedback from clinical supervisors. It became evident that participants appreciate support and feedback from clinical supervisors, as well as receiving from them some form of guidance. For example, one participant said:

I became very dependent on supervision, not only from the supervisors, but from peers as well. Most of the stuff that I did or thought, I would run by at least somebody, and I enjoyed it a lot when people would reciprocate, when people would talk with me, and sometimes they could validate what I was suspecting or feeling or they could give me a counter-argument, then I would understand better.

Another participant stated:

And then of course, supervisor feedback is helpful. Not only in terms of the therapy, but in terms of the academic progress which can help with the uncertainty, because it just drills uncertainty down from…am I good enough, am I going to cope?…to more concrete areas of uncertainty that actually do need to be worked on.

A second theme that emerged from the data in dealing with uncertainty is peer consultation. One sub-theme emerged namely, peer support and feedback. For example, one participant said:

Getting support from classmates is also helpful. We had an incredibly collaborative group this year…When we find we are aware of each other’s cases, we’ll e-mail each other articles for references…there is a lot of support we got from each other.
Participants also reported that they appreciated sharing experiences and comparing themselves with their peers. This provided them with input, as well as feedback in terms of their progress. Furthermore, participants also compared themselves with their peers to experience a sense of commonality. For example, one participant said: “I think I also have a lot of friends that are within this situation, so also just talking to them and hearing what they did, helped me a lot”.

Self-enhancement was identified as another strategy for dealing with uncertainty. Four sub-themes emerged, namely self-reflection, personal therapy, self-awareness, and self-knowledge. It became evident that some of the participants utilised self-reflection in their personal therapy, supervision and in the training course. This, in turn, facilitated improved self-awareness, and self-knowledge. For example, one participant expressed the use of self-reflection in supervision as follows:

I experience it [supervision] positively because I know that everything that I can learn of myself will make me a better therapist for the client. Because if I am more self-aware, there is more stuff that I will be able to work through in therapy.

Related to the context of course work, one participant reported: “…they [the lecturers] helped us to be self-reflective, so that has helped me cope more. Everyday we had to reflect on how everything was going, so I think being self-reflective has been helpful as well.”

Other participants relied on personal therapy. Participants reported that personal therapy supported them in becoming more aware of their personal self. This also helped them to develop self-knowledge. For example, one participant said:

I think my own therapy has helped me become a better therapist because I’ve learned to trust myself more than the theory… For me to explore who I am as a person, to say how I am going to be the best therapist and what theory would fit with that.
A fourth strategy that emerged for dealing with uncertainty revolved around theoretical knowledge. One sub-theme emerged, namely preparation, building and reliance on theory. Participants stated that they engage continuously in reading literature, such as text books, the Internet, and electronic databases to develop their knowledge on certain topics. For example, one participant said:

I think I tried to control my uncertainty to a large extent by working very hard. To make sure that I did everything from my point-of-view, to make sure that I pass and do well…making sure that I meet the requirements of whatever assignments we got, preparing well for exams, that type of thing. To make sure that I was knowledgeable about the topics we had to deal with.

Another participant said:

I use theory to kind of build a safety net and that helps me. It helps me to read up after I’ve seen a client as well, and then to recognise the things that happened in the therapy, to recognise them in the theory as well, in the literature, then it feels more familiar.

A fifth strategy that some participants relied on for dealing with uncertainty was gaining practical experience. Exposure to and experimentation in practical work emerged as a sub-theme. For example, one participant said:

Experience probably made the biggest difference, because you can have all this uncertainty about what you’re suppose to do, and what is the right thing to say in therapy with the client, and what is safe and what is not safe… But until you actually do it, you are going to be afraid. So, I’ve had quite a few sessions where I had like this rush of anxiety just before saying something, and then I say it, and I see what happens and then
it’s very nice to see that most of the time things went well. So then the next time that I did the same thing, it was less anxiety-provoking; it was less uncertain.

Another participant said: “I think it’s also coping with the exposure process, exposure in terms of getting used to the feeling that you’ve got to make the decisions in collaboration with your client”.

The sixth strategy that emerged was the way some participants cognitively appraised experiences. Reframing experiences positively was one sub-theme that emerged. For example, one participant said:

I think the uncertainty is good and it activates your agency, if I can put it that way. You realise that you are not sure, so you want to figure it out. So I don’t think it’s a bad thing, I think you can sometimes be overwhelmed by it, but I think it is contained in that you know that other people are going through it as well.

Another participant stated:

Another way of coping is to think about myself positively, to remind myself that I did perform well in the previous year, that I do have the capacity to deal with it, that other people have done it, and there is no reason why I can’t. But if you start seeing it as a journey, without an end, and seeing it as not as a goal, but rather as an experience, I think it relieves some of the uncertainty and anxiety.

The second sub-theme that emerged is self-confidence in the context as a psychologist in general, while simultaneously conducting psychotherapy with clients. Relating to self-confidence in the context as a psychologist in general, for example, one participant expressed it in the following way: “The course demands some independence and I think that is good, especially since it’s a professional training programme. And part of training should be to be able
to function confidently on your own”. Another participant stated: “But because people have
expressed belief [referring to being selected in the MA course] in your ability to perform in those
capacities, it really has helped”. Regarding self-confidence, while conducting psychotherapy, for
example, one participant said:

I’m learning more and more that it’s all about the therapist just being able to *be* in the therapy
room, be themselves, be congruent, and be brave. It’s not so much about the techniques, and
as I’m learning that it’s actually easier, it’s getting easier, and less uncertain.

The third sub-theme that emerged was an internal locus of control between the client and the
therapist, while conducting psychotherapy. Some participants reported that they got comfortable
with the idea of allowing their clients to assume responsibility. This helped them deal with their
uncertainty. For example, one participant said: “Let the client direct it more, let the client
initiate, let the client determine where we’re going to go, and that’s helped me, instead of taking
a lot of responsibility for the session”. Another participant stated: “I think it gives me comfort
to know that the client is going to do the work of changing and I am just an agent of being part of
that change perhaps…”

A seventh theme that emerged as a strategy for dealing with uncertainty is self-care. Two
sub-themes emerged, namely relying on social support, and engaging in leisure activities like
sport, watching television, and playing computer games. Concerning social support, for
example, one participant said:

Well, basically dealing with my uncertainty I think, the most pertinent thing was to rely on
my support structure which was basically my family and my loved ones, as well as sport, and
making sure that I took time for myself to relax.
Relating to leisure activities in dealing with uncertainty, for example, one participant stated: “A series on the computer, and movies, and stuff like that, those are the kind of things that keep you busy”.

**Discussion**

The level of curiosity and exploration in psychologists-in-training will first be discussed, followed by strategies for dealing with uncertainty during their professional development.

**Level of Curiosity and Exploration Amongst Psychologists-in-Training**

Most participants have moderate (58%) to high (42%) levels (Table 5.4) on the CEI (Kashdan, Rose & Fincham, 2004). A larger number of participants (62%) obtained high scores on the exploration subscale, whereas the level of absorption (46%) was lower (Table 5.4). This suggests that all of the psychologists-in-training who participated in this study reported moderate to high levels of curiosity and exploration with higher levels of curiosity than those for absorption. Even though more participants obtained a higher score on the exploration subscale than the absorption subscale, many participants fall within the moderate (48%) to high (42%) range on the absorption subscale.

The results suggest that participants actively seek out wide-ranging sources of novelty and challenges (Berlyne, 1960). This in turn, also implies that participants tend to be approach-oriented rather than avoidance-oriented to challenging and uncertain events (Berlyne, 1960). Approach coping in turn is associated with better psychological adaptation (Kuyken, Peters, Power, & Lavender, 1998). According to Berlyne (1960), participants may also tend to recognise and allocate personal resources to challenging experiences.

Results furthermore suggest that participants seek depth in their knowledge and experiences, but to a lesser extent than in comparison with seeking out wide-ranging sources of novelty and
challenges (Berlyne, 1960). Absorption relates to optimal experiences or flow states. These are a central part of curiosity (Kashdan, Rose & Fincham, 2004). Absorption involves full engagement of an individual’s energies and abilities in challenging activities (Csikszentmihalyli, 1975), and an ability to ignore non-essential information which can result in a strong sense of personal control and the experience of pleasure (Csikszentmihalyli, 1975; Kashdan, Rose & Fincham, 2004). Even though participants’ absorption (specific curiosity) in activities and experiences was lower than their exploratory behaviour or diverse curiosity (Berlyne, 1960), both specific and diverse curiosity levels were significantly higher in this group of psychologists-in-training.

One may ask why some participant’s absorption in experiences is slightly lower than their exploration of experiences? This might be due to contextual factors (Foxcroft & Roodt, 2001). The way participants interpreted the CEI items may have resulted in measurement errors which could account for the lower absorption score and the low total CEI internal reliability score (Foxcroft & Roodt, 2001). For example, the items on the absorption subscale could have been interpreted as too loaded. This, in turn, might have influenced participants’ lower agreement in the absorption items. The lower absorption scores might suggest that the participants communicated that they could regulate their desire for knowledge of a specific topic to avoid becoming completely absorbed in irrelevant and insignificant details to the exclusion of a broader range of knowledge (Schmitt & Lahroodi, 2008). Being too concerned with insignificant detail, could prevent participants from enquiring into a broad range of topics (Schmitt & Lahroodi, 2008). Nevertheless, participants reported having both moderate to high levels of diverse and specific curiosity and their curiosity and exploratory behaviour may therefore be experienced positively. According to Berlyn (1960), participants thus tend to be
approach-oriented to challenging experiences, and also seek some degree of depth to their experiences. This can lead to a sense of competence through the successful integration of new experiences.

High levels of exploratory behaviour amongst participants are considered to be important, as curious students tend to enjoy challenging experiences (Zion & Sadeh, 2007). Individuals with high levels of curiosity and exploratory behaviour tend to be open to a variety of thoughts, perspectives, and to explore those which will facilitate learning and the building of knowledge and skills (Kashdan, Steger & Breen, 2007; Kashdan & Yuen, 2007; Tracey, 2002). This, in turn, can support them in adapting to changing environmental conditions (Voss & Keller, 1983), especially to changes, challenges, and uncertainty in the work environment (Kashdan, Steger & Breen, 2007). Furthermore, exploratory tendencies could facilitate learning, competence, and self-determination from which continuing meaning and wellbeing may be derived (Kashdan & Steger, 2007). Participants with high CEI levels might also tend to have better relationships with others in their work settings, (Kashdan, Steger & Breen, 2007) and are also more likely to benefit from personal and social resources when confronted with life stress (Kashdan, Rose & Fincham, 2004). The use of personal and social resources is also confirmed by the strategies that psychologists-in-training use to deal with uncertainty.

Closer investigation (Tables 5.5, 5.6 and 5.7) of each of the CEI items, indicates that participants reported higher than average scores (agreed) for each CEI item (e.g., “I would describe myself as someone who actively seeks as much information as I can; everywhere I go, I am looking out for new things or experiences; when I am actively interested in something, it takes a great deal to interrupt me”), except for item two (“When I am participating in an activity,
I tend to get so involved that I lose track of time”) which indicated a below-average score (disagreed with the content of the item) of (42%).

Furthermore, the vast majority of participants agreed (5, 6, and 7 on the 7-point Likert scale) on CEI item one (90%) and three (88%). Most participants thus reported that they actively seek as much information as they can, and that they are frequently looking for new opportunities to grow as a person (e.g., information, people, and resources). This result was confirmed in the themes that emerged regarding strategies that participants used to deal with uncertainty. The following strategies were used by participants in dealing with uncertainty: getting support and feedback from clinical supervisors; peer consultation; self-enhancement, including self-reflection, personal therapy, self-awareness and self-knowledge; reliance on theory; practical experience; positive cognitive appraisals of experiences, including self-confidence, and striving for an internal locus of control; and self-care including reliance on social support and engaging in leisure activities. These strategies are regarded as proactive approaches for dealing with uncertainty, and are resources for optimal professional development (APA, 2002; BACP, 2002; Bandura, 1997; Department of Health, 1999; Hunt & Sharpe, 2008; Kashdan, Steger & Breen, 2007; Kolb, 1984; Norcross, et al. 2005; Renner, 2006).

Bienefeld (1985) found similar results in practising psychologists’ coping approaches to psychotherapeutic uncertainty. Her results yielded six clusters, namely reliance upon theory, maintaining a tolerance for ambiguity, personal gratification, adopting an investigative attitude, patient characteristics, and reliance on consultation with colleagues, and also their own intuition. Results of the current study suggested that participants also relied on theory, adopted a positive thinking style (including maintaining a tolerance for uncertainty), relied on theoretical training and reading (adopting an investigative attitude), relied upon consultation with supervisors, peers,
and personal therapy (colleagues), and self-confidence (including intuition). Personal
gratification and patient characteristics did not become evident in the current investigation, but
yielded other strategies, namely: self-reflection, including improved self-awareness and self-
knowledge; practical experience; cognitive appraisals, including maintaining an internal locus of
control and self-confidence; and self-care.

**Strategies for Dealing with Uncertainty Amongst Psychologists-in-Training**

As stated above, participants reported that they actively sought as much information as they
could, and that they frequently looked for new opportunities to grow as a person (e.g.,
information, people, and resources). This finding was also confirmed in the qualitative results
regarding strategies that participants used to deal with uncertainty during their professional
training and development (Table 5.8).

One major theme that emerged was that participants made use of clinical supervision as a
strategy for dealing with uncertainty. Milne (2007) defined clinical supervision as the formal
provision by senior/qualified health practitioners of an intensive relationship-based education
and training that is case-focused, and which supports, directs and guides the work of colleagues
(supervisees). Participants regarded supervision as supportive; supervision facilitated some
direction, and they valued feedback on their practical and theoretical progress. Research concurs
that supervision should be supportive, provide some structure and provide positive feedback on
trainees’ performance (Hunt & Sharpe, 2008). According to the British Psychological Society
(2002), making use of supervision is regarded as an important element in the development of
professionals. Positive feedback from supervisors is important since it may give rise to feelings
of competence, disrupt fears of negative evaluation, and in turn increase feelings of control
(Deci, Koestner, & Ryan, 1999; Kashdan & Fincham, 2004). Furthermore, when feedback is
given on the effectiveness of learning efforts, it facilitates experiential learning (Kolb & Kolb, 2005).

Participants furthermore reported that they rely on peer consultation, which included support and feedback. This finding is important since Sheikh, Milne, and MacGregor (2007) regard peer group social support as a professional development priority which is included in the PPD model. It became evident from the results that participants used comparison to evaluate themselves in terms of progress, but also to share a sense of commonality with their peers. Literature concurs that individuals compare themselves with others as one way of evaluating themselves and gaining feedback in terms of their progress (Langer, 2005). Furthermore, subjective feelings of sharing commonalities with peers contribute to social integration and ultimately social well-being (Keyes & Lopez, 2005). Since some participants experienced support from their supervisors and peers, it could be assumed that their supportive environments would furthermore possibly facilitate curiosity and exploratory behaviour (Kashdan & Fincham, 2004; Kashdan & Silvia, 2009).

Another strategy (or strength) that is reported by some participants as a strategy for dealing with uncertainty is self-enhancement. Self-enhancement strategies include self-reflection, personal therapy, self-awareness and self-knowledge. It appeared that participants use self-reflection, not only during personal therapy, but also in supervision and the training course. Self-reflection in these settings, in turn, resulted in improved self-awareness and self-knowledge. According to Maddux (2005), self-reflective activities are when an individual engages in self-observation and can analyse and evaluate his/her own behaviour, thoughts, and emotions. Self-reflection strategies were reported to be important for participants, since they made them knowledgeable about themselves as professionals. This finding is supported in the literature,
stating that self-reflection is regarded as an important priority during professional development, since it helps trainees to become more self-aware, to gain a better understanding of themselves, and it also facilitates learning (BACP, 2002; Kashdan, Steger, & Breen, 2007; Kolb, 1984; Norcross et al. 2005; The Department of Health, 1999). Literature, furthermore, supports the finding that self-reflection also develops the ability to use the self in therapy, and it increases effectiveness in the use of skills (BACP, 2002a). Neufeldt, Kavno and Nelson (1996) stated that searching through the uncertainty via reflection has been described as the best method for novices’ professional growth.

Theoretical training was another strategy for dealing with uncertainty in the present sample of psychologists-in-training. It included preparation of the course work, and building and reliance on theoretical knowledge. This suggests that participants build a scientific knowledge foundation to rely on in their practical work. It may therefore be assumed that these participants value science for practising psychology (APA, 2002), display a questioning attitude, and search for confirmatory evidence (Stricker, 2002). This contrasts with Barlow’s (1981) and Shakow’s (in Long & Hollin, 1997) concern regarding whether psychologists actually do combine the roles of scientist and practitioner, and whether there is any need for them to do so. Results of the current investigation support the notion that the current sample of psychologists-in-training relies on science, as well as practice, as a strategy for dealing with uncertainty.

Furthermore, supporting the notion that participants combine the roles of scientist and practitioner, practical experience was reported by participants to be another strategy which they employed to deal with uncertainty. This is in accord with Moro (2007), who said that after a trainee had mastered a certain degree of theoretical knowledge, the trainee is then faced with
how to apply it. The current sample of psychologists-in-training are building knowledge through practical experience as a strategy for dealing with uncertainty (Kolb’s, 1984).

Participants, furthermore, used certain cognitive appraisals, including reframing experiences positively, relying on an internal locus of control, and having self-confidence to deal with uncertainty during their professional training and development. Reframing experiences positively is a thinking technique which is closely related to Seligman’s (1991) learned optimism. Research has shown that learned optimism has several benefits, such as performing better in the academic setting, being better able to cope with adverse situations in more adaptive ways (Scheier & Carver, 1993), and better physical and mental health (Seligman, 1991). According to Kashdan, Rose, and Fincham (2004), positive evaluations of the self are also associated with curiosity and exploration.

Participants also relied on an internal locus of control when conducting psychotherapy with clients. An internal locus of control refers to individuals that believe they can determine their own behaviour (Rotter, 1975). Research suggests that an internal locus of control serves as a resilience factor in times of stress (Werner & Smith, 1982). Furthermore, it appears that curiosity and exploration are together associated with an internal locus of control (Kashdan, Rose & Fincham, 2004).

Some participants also displayed self-confidence in theoretical and practical work as a strategy for dealing uncertainty. Self-confidence is highly related to self-efficacy (Bandura, 1982). Academic self-efficacy refers to a student’s belief in his/her ability to do the course work, to regulate their own learning activities, and to live up to the academic expectation of themselves and others (Baron & Byrne, 2003). There also exists a strong relation between confidence and quality work-related performance (Stajkovic & Luthans, 1998). According to Bandura (1997),
positive feedback, mastery experiences, and vicarious learning all lead to the development of confidence. As stated before, participants relied on feedback from supervisors and peers; and they also learned through their own experiences. It may therefore be assumed that feedback from supervisors and peers, and their experiential learning, may contribute to improved self-confidence.

Lastly, the current sample of psychologists-in-training also used self-care as a strategy for dealing with uncertainty. Psychologists who engage in self-care activities are sensitive to their own needs (Handelsmand, Knapp & Gottlieb, 2005). This includes that they can balance their workload and their personal lives, develop strong social networks, and seek and accept help from others when this is needed (Handelsmand, Knapp & Gottlieb, 2005). Participants relied on social support and made use of leisure as strategies for dealing with uncertainty during their professional training and development. Social support is defined by Sarason, Sarason, and Pierce (1994) as the physical and psychological comfort provided by one’s friends and family members. Evidence supports the notion that social support helps trainees to adapt psychologically (Kuyken et al., 1998). The building of social networks is important in providing support in the face of stressful life events. The evidence suggests that curious individuals seem to be more competent in building social networks (Renner, 2006).

Furthermore, leisure refers to periods in which individuals are under no responsibility to do something specific, and can consequently spend their time as they wish (Lefrançois, 1996). Leisure is considered as an important strategy for this sample of participants, since it was found that leisure contributes to a balance in their workload and their personal lives and can facilitate satisfaction with life and relief from stress (Lefrançois, 1996).
Conclusions

Most participants have moderate (58%) to high (42%) levels (Table 4) on the CEI (Kashdan, Rose & Fincham, 2004). A larger number of participants (62%) obtained high scores on the exploration subscale, whereas the level of absorption (46%) was lower (Table 5.4). Results suggest that participants tend to actively seek out wide-ranging sources of novelty and challenges; participants tend to be approach-oriented rather than avoidance-oriented to challenging and uncertain events, and that participants may also tend to recognise and allocate personal resources to challenging experiences (Berlyne, 1960). Results, furthermore, suggest that participants seek depth (absorption) in their knowledge and experiences, but to a lesser extent than in comparison with seeking out wide-ranging sources of novelty and challenges (exploration). Participants’ lower level of absorption may be due to how participants have interpreted the absorption items (measurement error) (Foxcroft & Roodt, 2001). It might be that the participants prefer to regulate their desire for knowledge to a specific topic in order to avoid becoming completely absorbed in detail to the exclusion of a broader range of knowledge (Schmitt & Lahrroodi, 2008).

Furthermore, participants reported that they actively sought as much information as they could, and that they frequently looked for new opportunities to grow as a person (e.g., information, people, and resources). This finding was confirmed in the qualitative findings. Participants from the current sample reported that they used the following strategies to deal with uncertainty: reliance on clinical supervision; consultation with peers; self-enhancement including self-reflection, personal therapy, self-awareness, and self-knowledge; reliance on theoretical knowledge; learning from practical experience; using certain cognitive appraisals,
such as reframing experiences positively, self-confidence, and maintaining an internal locus of control; and self-care, including seeking social support and engaging in leisure activities.
Conclusions

The aim of this study was to: (a) determine the level of curiosity and exploration in a purposive-available selected sample of psychologists-in-training; and (b) to explore and describe how psychologists-in-training have dealt with uncertainty during their professional development. It was found that participants in this study had moderate-to-high levels of curiosity and exploration, with a higher level of exploration than absorption. It is possible that the participants may have interpreted the items on the Absorption subscale as too loaded, thereby influencing their lower absorption than exploration score (Foxcroft & Roodt, 2001). This might imply that participants were inquiring into a broad range of topics and regulated their behaviour not to be observed in excessive detail (Berlyne, 1960; Schmitt & Lahroodi, 2008). However, participants’ moderate- to-high levels of curiosity and absorption might thus lead to various positive psychological outcomes such as: being better able to adapt to changes in the work environment; the learning and development of skills, knowledge, and competence; and having supportive relationships with others in the work environment (Kashdan, Steger & Breen, 2007).

It was furthermore found that participants actively sought as much information as they could, and that they were frequently looking for new opportunities to grow as persons (for example, information, people, and resources). Participants were thus approach-oriented and not avoidance-oriented (Berlyne, 1960). This last-mentioned finding was confirmed in the context of the participants’ strategies for dealing with uncertainty during their professional development. Results indicate that participants engaged in the following proactive behaviours in dealing with their uncertainties: gaining support and feedback from supervisors and peers; self-enhancement
including self-reflection, personal therapy, self-awareness and self-knowledge; reliance on theoretical knowledge; experiential learning; cognitive appraisals, such as reframing experiences positively, maintaining an internal locus of control, and self-confidence; and lastly, they employed self-care strategies, including reliance on social support and engaging in leisure activities.

Evidence suggests that the strategies of using supervision, peer social support, self-reflection, experiential learning, and reliance upon theory that these psychologists-in-training used to deal with their uncertainties are all very important elements in the professional training and development of psychologists (APA, 2002; British Psychological Society, 2002; Gilmer & Marcus, 2003; Holttu & Goble, 2006; Kolb, 1984).

The strategies that the selected group of participants used have been associated with positive psychological outcomes in previous research. These include: (a) positive feedback from supervisors which may facilitate feelings of competence, disrupting fears of negative evaluation, increased feelings of control, and facilitating experiential learning (Deci et al., 1999; Kashdan & Fincham, 2004; Kolb & Kolb, 2005); (b) peer group social support may contribute to social well-being (Keyes & Lopez, 2005). Both support and feedback from clinical supervisors and peers may, in turn, facilitate curiosity and exploratory behaviour (Kashdan & Fincham, 2004; Kashdan & Silvia, 2009); (c) self-reflection may improve self-awareness and self-knowledge. Self-awareness may facilitate learning, and increase effectiveness in the use of skills (BACP, 2002; Kashdan, Steger, & Breen, 2007; Kolb, 1984; Norcross, et al. 2005; The Department of Health, 1999); (d) positive thinking has been associated with better performance in the academic settings. It has facilitated improved coping and psychological adaptation, as well as better psychical and mental health (Scheier & Carver, 1993; Seligman, 1991); (e) an internal locus of
control has been found to serve as a resilience factor in times of stress (Werner & Smith, 1982); (f) self-confidence has been associated with improved quality in work-related performance (Stajkovic & Luthans, 1998a); (g) social support has been associated with better psychological adaptation and has acted as a buffer in the face of stressful life events (Kuyken et al., 1998; Renner, 2006); (h) leisure activities have been shown to be associated with improved satisfaction with life and relief from stress (Lefrançois, 1996).

Limitations

This is a study of limited scope and the participants were selected from psychologists-in-training. The results are therefore only applicable to the selected participants of this study and the findings may be unique with regard to the relatively small sample of participants in the research study (Gay, Mills & Arasian, 2006; Johnson & Onwuegbuzie, 2004; Tredoux & Smith, 2006). Even though the researcher did not intend to generalise the findings, these may be transferred to similar settings (psychologists-in-training in similar contexts) by others should they deem it feasible (Gay, Mills & Airasian, 2006). In order to allow for transferability judgements to be made, the researcher made use of a dense description of the research design, methodology, and participants (Lincoln & Guba, 1985).

Furthermore, this study only aimed at exploring and describing the levels of curiosity and exploration as to how psychologists-in-training have dealt with their uncertainties. No cause-and-effect conclusions can therefore be made on the basis of these results. According to the literature, curiosity and exploration are complex phenomena and are influenced by factors such as personality, attachment, emotions, and interests (Litman & Jimerson, 2004; Litman & Spielberg, 2003; Loewenstein, 1994). The relation between last-mentioned factors and curiosity and exploration were not investigated by this study and therefore no direct associations could be
made in this regard. Furthermore, this study did not determine correlations between participants’ curiosity and exploration, and positive psychological variables, such as subjective wellbeing and satisfaction with life, but relied only on triangulating the findings with the existing literature. The limitations of the quantitative results suggest that the knowledge produced may be too abstract and general for direct application to other contexts and individuals (Johnson & Onwuegbuzie, 2004).

**Recommendations for Future Research**

This research yielded valuable information regarding the satisfactory levels of curiosity and exploration in psychologists-in-training and the strategies that they use to deal with their uncertainties during their professional development. Since no cause-and-effect conclusions for curiosity and exploration could be made in this study, future research should aim to determine the nature of the relationships between personality, positive and negative affect, attachment, interest, and positive psychological measures in relation to curiosity and exploration within a larger random group of psychologists-in-training. Furthermore, it would be useful to investigate psychologists-in-training strategies for dealing with uncertainties in relation to specific domains of professional training, such as course work, psychotherapy, research, ethical issues, and work environments (for example, supportiveness/stress) to provide a greater in-depth understanding of their coping strategies.

**Recommendations for Practical Application**

One theme that emerged is that participants make use of supervision and they appreciated feedback from their supervisors. This might imply that participants may experience their educational environment as being supportive, which may in turn, facilitate curiosity and exploration (Kashdan & Fincham, 2004; Kashdan & Silvia, 2009). Since participants rely on
feedback from their supervisors, it is important for training institutions to recognise that novice trainees could well be fragile and highly reactive to negative feedback (Skovholt & Ronnestad, 2003). It is recommended that feedback should be positively framed, as it may improve feelings of confidence and perceived control in trainees and decrease their fears of negative evaluation (Deci et al 1999; Hunt & Sharpe, 2008; Kashdan & Fincham, 2004). It is thus desirable that training institutions should create contextual conditions that facilitate the perceptions and emotions that will lead to greater curiosity (Kashdan & Fincham, 2004). Furthermore, it is also important for training authorities to support autonomy, competence, and relatedness in trainees, as these qualities could facilitate better curiosity and learning (Kashdan & Fincham, 2004).

Training institutions could play a larger supporting role in facilitating curiosity and exploration in psychologists-in-training.

Some of the following empirically informed strategies for encouraging curiosity are recommended: (a) in order to facilitate autonomy, tasks that capitalise on novelty, complexity, ambiguity, variety, and surprise should be included; attempts should be made to foster personal responsibility and the ownership of actions and successes should be implemented; clear detailed information on task structure and expectations should be provided; (b) in order to facilitate competence, encouragement and supportive feedback for any efforts should be provided; the focus should be on improvement and the process of learning and mastery, and the avoidance of threat, judgement, and harsh evaluation and criticism; (c) in order to facilitate relatedness, open dialogue should be fostered and expressions of empathy for individuals’ emotions, values, and needs. Clear information should be provided on the social structure and other people; and could express and model interests in individuals and activities (Kashdan & Fincham, 2004).
Furthermore, the qualitative results yielded valuable information regarding the application of the scientist-practitioner model, the experiential-learning model, and the Personal Professional Development model in the training of professionals. Results suggest that participants relied on scientific evidence to inform their practice (scientist-practitioner and Personal Professional Development) (Stricker, 2002). They built knowledge through practical experience (experiential learning and Personal Professional Development: Kolb’s, 1984); and they also relied on self-reflection (experiential learning and Personal Professional Development). Participants furthermore, relied on feedback from their supervisors and peer group social support (Personal Professional Development). This implies that these models are valuable when the training of professionals is considered and the Personal Professional Development Model appears to be a comprehensive model. The PPD model incorporates not only experiential learning and a scientific approach, but other important factors such as feedback, self-reflection, self-awareness, self-knowledge, and peer group social support. The results also support the notion that training institutions should encourage reflective practice as a training priority (Department of Health, 1999; Gillmer & Marckus, 2003). These issues are important in training professionals (Gillmer & Marckus, 2003).
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Appendix A: Informed Consent Form for MA Course Co-ordinators

Nelson Mandela Metropolitan University
INFORMED CONSENT FORM for RESEARCH
MA Psychologists-in-training
Miss O. Gerber, supervised by Prof. C. N. Hoelson

Dear (Mr/Ms Name of Director/MA Clinical and Counselling course co-ordinator)

I am asking for your permission to select your MA Clinical and Counselling students to participate in a research study. The purpose of this study is to a) determine the levels of curiosity and exploration in a group of psychologists-in-training; b) and to explore and describe how psychologists-in-training have dealt with uncertainty during their professional development.

INFORMATION
Selected students will be asked to complete one brief questionnaire. The questionnaire will measure their curiosity and exploratory behaviour levels. Selected students may also be asked to engage in a semi-structured face-to-face interview to answer an open-ended question on how they have dealt with any uncertainty they may have experienced in their professional development as a psychologist.

RISKS
There are no risks related to this study.

BENEFITS
There are no immediate benefits from participation in this study. However, this study may be beneficial to others. The main advantage is to identify possible strengths for professional development in psychologists-in-training and to possibly make recommendations in this regard.

CONFIDENTIALITY
The information obtained will be kept strictly confidential. The data will be stored securely and accessed only by the principal researcher. No reference will be made in oral or written reports which could link the student to the study.

CONTACT
If you have any questions at any time about the study or the procedures involved, the principal researcher can be contacted at s208090321@nmmu.ac.za. If you feel that you or the students have not been treated in accordance with these criteria described on this form, or the rights of a participant have been violated during the course of this project, you may contact the Director, Research Capacity Development, NMMU (Tel: 041 5042538).

PARTICIPATION
Students’ participation in this study is voluntary; they may decline to participate without penalty. If they decide to participate, they may withdraw from the study at any time without penalty and without any loss of benefits to which they would otherwise be entitled. If they withdraw from the study before the data collection is complete, their data will be returned to them or destroyed at their request.
FEEDBACK
General written feedback will be given to you on completion of the study should you request it.

CONSENT
“I have read and understand the above information. I have received a copy of this form. I grant permission for the MA Clinical and Counselling students to participate in this study, should they wish. They may withdraw at any time.”

Name: _____________________      Surname: _____________________

Date: _____________________      Signature: _____________________

Project Co-ordinator’s Signature: ________________      Date: ________________
Appendix B: Letter to Participants Prior to Participation

Ref: HO9-HEA-PSY-001

Contact person: Ms N. Ahmed

Dear student,

You are being asked to participate in a research study. We will provide you with the necessary information to assist you in understanding the study and explain to you what would be expected of you (participant). These guidelines would include the risks, benefits, and your rights as a study subject. Please feel free to ask the researcher to clarify anything that is not clear to you. To participate, it will be required of you to provide written consent that will include your signature, date and initials in order to verify that you understand and agree to the conditions. You have the right to query any issues regarding the study at any time. You may immediately report any new problems during the study, to the researcher. The telephone numbers of the researcher are provided. Please feel free to call these numbers.

Furthermore, it is important that you should be aware of the fact that the ethical integrity of the study has been approved by the Research Ethics Committee (Human) of the university. The REC-H consists of a group of independent experts who have the responsibility to ensure that the rights and welfare of participants in research projects are protected and that studies are conducted in an ethical manner. Studies cannot be conducted without the REC-H’s approval. Any queries regarding your rights as a research subject may be directed to the Research Ethics Committee (Human), Department of Research Capacity Development, PO Box 77000, Nelson Mandela Metropolitan University, Port Elizabeth, 6031. If no-one is available to assist you, you may write to: The Chairperson of the Research, Technology and Innovation Committee, PO Box 77000, Nelson Mandela Metropolitan University, Port Elizabeth, 6031.

Participation in research is completely voluntary. You are not obliged to take part in any research. If you do participate, you have the right to withdraw at any given time during the study without penalty or loss of benefits. However, if you do withdraw from the study, you should return for a final discussion or examination in order to terminate the research in an acceptable manner.
Although your identity will at all times remain confidential, the results of the research study may be presented at scientific conferences or in specialist publications.

This informed consent statement has been prepared in compliance with current statutory guidelines.

Yours sincerely,

Ms O. Gerber
RESEARCHER
(041) 504 2330
Appendix C: Informed Consent Form for Participants

Nelson Mandela Metropolitan University

INFORMED CONSENT FORM for RESEARCH
MA Psychologists-in-training
Miss O. Gerber, supervised by Prof. C. N. Hoelson

To whom this may concern

I am asking you to participate in a research study. The purpose of this study is to: a) determine the levels of curiosity and exploration in a group of psychologists-in-training; b) and to explore and describe how psychologists-in-training have dealt with uncertainty during the period of their professional development.

INFORMATION
You will be asked to complete one brief questionnaire. The questionnaire will measure your curiosity and exploratory behaviour. You may also be asked to engage in a semi-structured face-to-face interview to answer an open-ended question on how you have dealt with any uncertainty you may have experienced in your professional development as a psychologist.

RISKS
There are no risks related to this study.

BENEFITS
There are no immediate benefits from participation in this study. However, this study may be beneficial to others. The main advantage is to identify possible strengths for professional development in psychologists-in-training and to possibly make recommendations in this regard.

CONFIDENTIALITY
The information obtained will be kept strictly confidential. The data will be stored securely and accessed only by the principal researcher. No reference will be made in oral or written reports which could link you to the study.

CONTACT
If you have questions at any time about the study or the procedures involved, the principal researcher can be contacted at s208090321@nmmu.ac.za. If you feel that you have not been treated in accordance with the criteria described on this form, or your rights as a participant have been violated during the course of this project, you may contact the Director, Research Capacity Development, NMMU (Tel: 041 5042538).

PARTICIPATION
Your participation in this study is voluntary; you may decline to participate without incurring any penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without any loss of the usual benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed, your data will be returned to you or destroyed at your request.
**FEEDBACK**
General written feedback will be given to you on completion of the study should you request it.

**CONSENT**
“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may withdraw at any time.”

Name: _____________________  Surname: _____________________

Date: ______________        Signature: ______________________

Project Co-ordinator’s Signature: ______________        Date: ______________
Appendix D: Curiosity and Exploration Inventory (CEI)
(Kashdan, Rose & Fincham, 2004)

Male ____  Female ____
Age ____
M1 ____  M2 ____

Using the scale shown below, please respond to each of the following statements in accordance with how you would usually describe yourself. There are no right or wrong answers.

1 2 3 4 5 6 7
Strongly Disagree Neither Agree Strongly Agree
Nor Disagree

_____ 1. I would describe myself as someone who actively seeks as much information as possible in any new situation.

_____ 2. When I am participating in an activity, I tend to get so involved that I lose track of time.

_____ 3. I frequently find myself looking for new opportunities to grow as a person (e.g. information, people or resources).

_____ 4. I am not the type of person who probes deeply into new situations or things.

_____ 5. When I am actively interested in something, it takes a great deal to interrupt me.

_____ 6. My friends would describe me as someone who is “extremely intense” when busy doing something.

_____ 7. Everywhere I go I am out looking for new things or experiences.

Notes. Item 4 is reverse-scored before summing; to reduce potential subject error, we suggest that “not” be italicized. Items 1, 3, 4, and 7 refer to the Exploration subscale and items 2, 5, and 6 refer to the Absorption subscale.