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SOME PERSONALITY AND COGNITIVE CORRELATES OF CAREER MATURITY

S COERTSE
JM SCHEPERS
Department of Human Resource Management
Rand Afrikaans University

ABSTRACT

The principal objective of this study was to determine the personality and cognitive correlates of career maturity. The sample comprised 1476 first-year students from different faculties at a South-African university. The Career Development Questionnaire was used to determine the career maturity levels of the respondents. Based on the scores in respect of the Career Development Questionnaire the respondents were divided into a career mature, a career immature and a middle group. These groups were then compared in respect of various personality and cognitive constructs. Statistically significant differences were found in respect of most of the personality constructs but not in terms of the cognitive constructs. The implications of the findings are discussed.

OPSOMMING

Die hoofdoel van die studie was om die persoonlikheids- en kognitiewe korrelate van loopbaanvolwassenheid te bepaal. Die steekproef het uit 1476 eerstejaarstudente vanuit verskillende fakulteite by 'n Suid-Afrikaanse universiteit bestaan. Die Loopbaanontwikkelingsvraelys is gebruik om die loopbaanvolwassenheidsvlak van die respondente te bepaal. Die respondente is verdeel in 'n loopbaanvolwasse, loopbaanonvolwasse en 'n middel- groep, gebaseer op die tellings van die Loopbaanontwikkelingsvraelys. Die onderskeie groepe is vergelyk ten opsigte van verskillende persoonlikheids- en kognitiewe konstrukte. Statisties-beduidende verskille is gevind ten opsigte van die persoonlikheidskontrukte, maar nie ten opsigte van die kognitiewe konstrukte nie. Die implikasies van die bevindinge word bespreek.

The assumption is usually made that, by the end of high school, adolescents have sufficient knowledge of the world of work and are in a position to make a career choice. Unfortunately not enough time and effort have been invested to confirm this assumption, considering that one of the most important decisions in an individual's life is his/her career choice. Johnson (2000) is of the opinion that a person's occupation has important consequences for the self and is the pivot on which his/her basic values and life goals rest. In view of the demands of a career on an individual, Super (1957) maintained that, in order to make the right career choice, a person should display a certain level of career maturity.

Career or vocational maturity is a construct that has been investigated, measured, and debated for over 30 years. The term was first used by Super (1957) in his career development theory, and can be defined as the extent to which an individual has mastered the age-appropriate vocational tasks relevant to his or her developmental stage (Betz, 1988). Thus, adolescents are career mature if they are able to make tentative career decisions and if they have gained knowledge about educational and occupational alternatives.

According to Crites (1978), career maturity is essential in the choice of a career. A career immature person cannot make an optimal career decision. Crites (1978) and Super (1957) maintained that a career mature person displays certain characteristics: the career mature person will gather information about the self in order to gain insight, obtain the necessary competencies in order to make an informed decision, integrate self-knowledge and knowledge of the world of work, and implement the above-mentioned knowledge when planning a career.

The purpose of this study was to identify the personality and cognitive correlates of career maturity. If the personality and cognitive profile of career immature students differ from that of career mature students, the results can assist in the early identification of career immaturity, and can prevent poor decision-making by applying proper career guidance and counselling methods.

Theories of Career Development

As mentioned above, the term "career maturity" originated as a construct in the career development theory postulated by Super (1957) and is a central theme when discussing career development.

Requests for copies should be addressed to: JM Schepers, Department of Human Resource Management, RAU, PO Box 524, Auckland Park, 2006

According to Super (1977, p.294), career maturity can be defined as "the way in which an individual successfully completes certain career development tasks that are required according to his current developmental phase". It is seen as the collection of behaviours necessary to identify, choose, plan and execute career goals.

When attempting to define the concept of career maturity, it is important to ask what is meant by a career. In the literature various definitions are found: Schein (1977) was of the opinion that a career is a planned direction that an individual follows over time and space, which includes involvement in a specific role. According to the National Career Development Association (Sears, 1982), a career is the totality of work and leisure in which a person is involved during his or her life. Another, and probably the most cited definition of a career is that of Super (1977, p.295). He defined it as "the course of events which constitutes a life; the sequence of occupations and other life roles which combine to express one's commitment to work in his or her total pattern of self-development". From the different definitions it is clear that a career spans a person's total lifespan, it represents a changing process rather than a static state, and calls for the person to become the active driving force responsible for constantly building constructive links between himself/herself and the working environment (Super, 1977).

Another important concept central to a career is the individual's interest in a specific field. Interest can be described as "a relatively constant positive or negative stance or motivation towards a specific activity which is based on personality and which directs behavior" (Super, 1977, p.300). When considering career development, it is important to help individuals analyse their abilities and interests, in order to better align their needs for growth and development within the world of work, taking into account their level of career maturity.

Different views about what the root of career development is have given rise to a number of theories about the concept. A theory is, in effect, "a rationalised set of assumptions or hypotheses that provides a person with tools that can be used to explain the past and predict the future" (Johnson, 2000, p.2). Theories therefore provide direction, and when tested and supported, can assist in expanding our knowledge.

The following section provides a detailed discussion of the different career development theories in order to provide a

better understanding of the concept and thereby highlighting the importance of career maturity. According to Johnson (2000), career developmental theories can be grouped into two categories: structural and development. A third group, called social cognitive career theory, will also be discussed.

Structural Theories

Structural theories aim to explain career development by focussing on individual characteristics and occupational tasks. The following structural theories will be discussed briefly: Trait and *Factor theories*, *Personality theories* and *Socio-economic theories*.

Trait and Factor theories

The Trait and Factor Theories, first proposed by Parsons, as cited by McDaniels (2000) state that the choice of a career depends on an accurate knowledge of the self, a thorough knowledge of job specifications and the ability to effect an optimal match between them.

The basis of Trait and Factor theories is the assumption that there are unique traits that can be measured, and that it is possible to match a person's traits to his/her occupational profile. A close match between the person's traits and his/her occupational profile will positively correlate with occupational success and satisfaction (Herr 2001; Langley, du Toit & Herbst 1996).

Langley, du Toit and Herbst (1996) maintain that the perspective of the Trait and Factor Theories was a short range, static view and that it was essentially orientated towards the organisation's needs, as opposed to the needs of the individual. In order to identify the needs of an individual it is necessary to first review the concept of personality.

Personality theories

A number of theorists focused on the relationship between a person's personality and his/her preference for specific tasks. For the purpose of this study only Roe's theory of personality, Hoppock's composite theory of occupational choice, and Holland's personality types, will be discussed.

Roe's theory of personality

Roe's (1956) research on personality types, suggest that personality differences cause people to interact with one another and with objects in different ways. Her perspective is based on the assumption that a person has an inborn tendency to unleash energy. This inherent tendency as well as certain environmental influences shape the functional style adopted by a person when trying to satisfy his/her needs.

Romine, Robinson and Owens (1999) divided Roe's theory into two tiers. The first tier focuses on the genetic background that underlies a person's abilities and interests, which in turn are related to his/her occupational choice. Internal energy, that is genetically determined, is expended and influences the development of a person's ability. Combined with this energy is the development of need primacies such as those highlighted by Maslow's hierarchy of needs. The second tier of Roe's theory focuses on higher order needs, such as Maslow's self-actualisation need. Lower-order needs will become dominant and block higher-order needs if not satisfied.

Some criticism of Roe's approach is that the results are difficult to test empirically, that it ignored non-parental influences and that her classification of occupations is seen as too simplistic (Romine, Robinson & Owens, 1999).

Hoppocks' Composite Theory of Occupational choice

Hoppock (1967) was of the opinion that a career is chosen to meet certain needs. Based on this, occupations are chosen in the belief that they would best meet the most dominant needs of the individual. Needs may be perceived as intellectual or vaguely felt attractions which draws the person in certain directions. In either case, Hoppock believes that needs may influence choices (Hoppock, 1967).

Hoppock (1967) postulated that career development begins when a person becomes aware that an occupation can assist in meeting his/her needs. This awareness grows and his/her occupational choice improves as the person develops the ability to anticipate how well a prospective occupation will meet those identified needs. Career choice depends on the knowledge of the self, knowledge of occupations and the ability to think clearly. Job satisfaction depends upon the extent to which the job meets the needs that have been identified. (Hoppock, 1967).

Holland's personality types

A prolific writer in the field of personality and the influence of personality on career choice is Holland (1973, 1985). He developed a theory to predict the characteristics of individuals and their environment that could lead to either positive or negative occupational outcomes and stability. According to him career choices are expressions of personality, ability and the appropriate environment. Individuals view the world of work in terms of stereotypes based on their perceptions and experiences.

According to Holland (1985) and Herr (2001) personal and environmental influences have a great impact on the development of an individual's personality. Parents consciously create environments that are consistent with their own personality type, world of work and friends. The child is exposed to the environment that the parents have created and in turn will model the behaviour of the parents. The environment, as well as genetics, play a role in creating certain preferences for certain activities. These environmental influences contribute to the formation of personality types, which manifest in certain behaviour (Holland, 1973 & 1985; Pattysmith, 2000). Holland identified six personality types which he linked to specific activities and matching occupations. Table 1 indicates the personality types identified by Holland (1985).

Table 1
The six personality types (holland, 1985)

TYPE	ACTIVITIES	MATCHING OCCUPATIONS
Realistic ("Do-ers")	• Practically minded; • Prefers to work outdoors • Likes to build or repair things	farmer, forester, pilot, electrician, truck driver, locksmith
Investigative ("Thinkers")	• Likes to solve mathematical and scientific problems by focussing on theory • Not particularly interested in working with people	chemist, biologist, dentist, physician, medical technician, surveyor
Artistic ("Creators")	• Likes self-expression and working alone • Creative in artistic media • Unconventional	dancer, actor, composer, musician, comedian, editor
Social ("Helpers")	• Concerned for welfare of others • Gets along well with people	nurse, social worker, counsellor, teacher
Entrepreneurial ("Go-getters")	• Likes leadership roles • Likes to persuade others • Does not like tasks that require long periods of intellectual effort	auctioneer, lawyer, judge, sales person, hotel manager, recreation leader
Conventional ("Organisers")	• Dislikes work requiring physical skills • Prefers structured activities • Does not mind rules and regulations	accounts clerk, secretary, bookkeeper, mail carrier, typist, bank teller

From Table 1 it is evident that specific activities are related to each of the personality types. These activities will manifest in certain occupations. The matching of an individual to one of these personality types will provide direction in terms of career choice.

Whether a person is satisfied with his or her career depends on the similarity between his/her personality and the work environment. Sharf (1997) highlighted the following five aspects evident in Holland's (1985) model:

1. Consistency: The extent to which a person's personality type is related to the environment. It is important that an individual's personality matches his/her environment.
2. Differentiation: The degree to which a person fits into a certain personality type. Individuals will make different career choices based on their personality differentiation.
3. Congruence: The degree to which a person's personality type matches the occupational environment. If there is incongruence, the person will not function optimally in his/her environment and will continuously search for a perfect match.
4. Identity: The possession of a stable and clear picture of a person's goals, interests and talents and matching these to his/her personality.
5. Calculus: The various inter- and intra-relationships between personality types and the environment. Although an individual's personality type is stable it is important to note that he/she can adapt and change depending on the environment.

Although Holland's theory is still widely applied, his typology is seen as too simplistic. The fact that it does not incorporate the development of personality types is strongly criticised (Pattysmith, 2000).

Although personality theories are vital to understanding careers, it is not sufficient. Individuals are complex beings who influence the environment and are influenced by it. In order to sketch a complete picture of what makes a person operate in a specific way it is essential to focus on the influence of external factors. The socio-economic theory considers those external factors that influence an individual.

Socio-economic Theory

The Socio-economic Theory was developed mainly by sociologists and economists who aimed to provide a detailed explanation and description of how an individual's culture, family background, social and economic conditions and other factors outside his/her control can influence his/her identity, values, and career development (Carlson, 1996). This approach to understanding career development suggests that many people follow the path of least resistance in their career development by simply accepting whatever work opportunities they are presented with (Carlson, 1996).

The Socio-economic Theory does not take internal factors into consideration and does not focus on the development and growth of an individual during his/her life.

Developmental Theories

Whilst the Trait and Factor Theories tend to deal with career issues at a given point in time and the Socio-economic Theory follows a very mechanistic approach, the developmental theories take a long-term, developmental perspective. The goal of the individual is to master various developmental tasks during successive stages of life in order to progress effectively. For the purpose of this study Super's Developmental Approach, Tiedeman's Decision-making Theory and Crites's Comprehensive Theory will be discussed briefly.

Super's Developmental Approach

Super (1957) is probably one of the best-known writers in the field of career development and is often referred to as the father of career development. His approach views the choice of a career as a series of events as opposed to Holland's (1985) static approach.

Super (1957) was of the opinion that by the time an individual is ready to make the transition from secondary school to work or college, a number of different choices have already been made. His theory postulates that an individual will choose an occupation that allows him/her to function in a particular role that is consistent with his/her self-concept. His theory is based on research done by Rogers (1951) on the self-concept and research done by Buehler (1933) on life-stages.

Super (1957) noted that career planning was a continuous process and not a single choice. His work encourages the monitoring of an individual's career progression during his/her life rather than just predicting initial occupational entry. A person moves through various occupational stages during his/her life and Super (1957, p.171) defined these life stages as "... derived from analysis of life histories in which major events and concerns group themselves and vary from one stage to another, justifying the classification of life into a sequence of characteristic stages". Super's life stages of occupational development is depicted in Table 2.

TABLE 2
SUPER'S LIFE STAGES OF OCCUPATIONAL DEVELOPMENT (SUPER, 1957)

Life stage	Tasks
Growth (14 – 15 yrs)	Physical and psychological growth Formation of attitudes and behaviour mechanisms important to the self-concept Develops knowledge through experiences, which will ultimately be used in choices
Exploration (15 – 24 yrs)	Fantasy phase – choices are realistic Tentative phase – choices are narrowed to a few possibilities Realistic phase – choices are narrowed to those that are attainable and opportunities thought to be important
Establishment (to about 44 yrs)	Trial-and-error phase where individual aims to get permanent place in world of work Stabilisation occurs nearing the end of phase
Maintenance (to about 65 yrs)	Continues the satisfying parts of the work situation Revises or changes unpleasant and annoying aspects
Decline (65 yrs +)	Emphasis is on keeping the existing job and meeting required standards of output More concerned with retaining the position than with enhancement

The table indicates that a person goes through different stages during his/her life. During each of these life stages a person is confronted with certain occupational tasks, which if completed, will enable him/her to progress towards the next developmental stage.

Although Super initially viewed these stages as chronological, he later revised his theory to acknowledge that individuals might move between phases depending on external influences. Super (1957, 1980) therefore came to the conclusion that a career does not only exist within the occupational context but is in fact a combination of roles in life. He postulated that these life roles interact in a manner that is supportive, supplementary, compensatory or neutral. Depending on the different circumstances, role interactions can be either facilitating or in conflict with one another.

Super (1962) further made the assumption that values are a major component in the career development process. Values are defined as, 'that which every individual strives

towards in order to satisfy needs' Super (1962, p.232). The degree to which the individual can express his/her values within the work environment will determine the degree of his/her career satisfaction.

Super (1980) viewed career maturity as a normative term that refers to the extent to which an individual's observed and expected career behaviour is congruent. According to him career maturity consists of five dimensions: awareness of the need to plan ahead, decision-making skills, knowledge of self and the world of work and the use of information resources, general career information, and reality orientation. These five dimensions develop via five activities that he labelled career developmental tasks (Super 1957, 1980). They are listed in Table 3:

TABLE 3
CAREER DEVELOPMENT TASKS (SUPER, 1980)

Occupation	General characteristic/Developmental task
Crystallisation of career preference (14-18 yrs)	Developing and planning a tentative vocational goal. This is mostly based on information from surroundings and role models. Early stages are very unrealistic and imaginative. The later years are more focused in terms of a definite goal
Specification of career preference (18-21 yrs)	Firming of the vocational goal. Getting actions steps in place.
Implementation of career preference (21-24 yrs)	Getting the necessary training and or education to fulfil the goal. Obtaining employment in the relevant field
Stabilisation of a career (24-35 yrs)	Working and confirming/changing career choice.
Consolidation of status and advancement (35 yrs+)	Advancement in career

The developmental tasks, listed in Table 3, provide the individual with the vehicle needed to progress through the five stages of career development. Although the developmental tasks seem sequential, Super (1990) later added that people can move between these stages as they adapt to changes in themselves as well as changes in the external world.

In summary it can be stated that Super's theory focuses on career development as a process incorporating the life stages, roles and values of an individual.

Tiedeman's Decision Theory
Tiedeman's (1979) research on career development focused on the process of organising and identifying different occupations through the interaction of the individual's personality with society. He focused on the decision-making process, indicating that the individual should take ownership and charge of his/her life. According to him decision-making consists of two stages (Tiedeman, 1979):

1. Anticipation stage: During this stage the individual explores a particular career. As he/she becomes aware of different personal needs, possible alternative occupations are identified. These alternatives are evaluated and compared with one another, after which the individual makes a choice.
2. Induction stage: This is the second stage in Tiedeman's (1979) theory where the individual is in a specific occupation and is conforming to the behaviour of his/her colleagues. As the individual experiences the need to fulfil certain unattained personal goals within his/her chosen occupation, he/she will endeavour to change this mismatch and aim to integrate personal and career goals.

Movement up or down these stages are usually preceded by a decision. However, advancement dominates, so the person usually goes from indecision to choice and then to action. Although Tiedeman's (1979) theory was not one of the most popular career development theories, he is regarded as having had a significant influence in the way career progression is approached. His contribution was considered to be a very mechanistic and simplistic view of the individual's ability to make informed decisions. Critique regarding Tiedeman's theory is based on the fact that it focuses only on the adult phase, whereas research shows that childhood experiences are also of critical importance.

Crites's Comprehensive Approach
Crites (1981) created a comprehensive career development model by integrating different approaches. In essence his approach focuses on development that relates to the decision-making process and not the content. He views time as the underlying factor of career development, and divides an individual's life span into certain stages. The stages are not tied to specific time frames and differ from person to person. He also focused on career maturity and postulated that maturity would increase over time. He proposed that the most important stage in career development is the establishment phase (age 16 to 25 years), which is a good predictor of future career success. Crites (1978; 1981) proposed a career maturity model with two dimensions: an affective dimension and a cognitive dimension.

The cognitive dimension is represented by career decision-making skills, whereas the affective dimension represents attitudes towards career development. Crites (1978) maintained that attitude is a dispositional response tendency that is distinct from abilities and interests.

Although several measuring instruments have been developed in order to measure the construct of career maturity, Crites' measuring instrument proves to be the most popular. The Career Maturity Inventory (CMI) was designed by him to measure the competencies or skills individuals require to make sound career decisions (e.g. planning, problem-solving, and self-appraisal skills), as well as their attitude toward career decision-making (e.g. orientation toward work and willingness to be realistic and make compromises). It consists of two scales, an attitude scale and a competence scale, both with five subtests each.

Recently, a revised form of the CMI was published (Crites, 1995). It was designed to (a) reduce administration and testing time; (b) extend the CMI to the adult level, including post-secondary students and gainfully employed individuals; (c) eliminate the original Attitude Scale and Competence Scale; (d) construct the Career Developer (CDR) (as a supplement to the CMI), to facilitate improved career maturity; and (e) prepare the CMI and CDR for a variety of scoring techniques and data analyses.

Crites made a tremendous contribution to the assessment of career development, in particular to career maturity. His theory and way of thinking are to a great extent in line with those of Super (1990) in that they both view a career as a life-long experience filled with decisions that an individual has to make.

Social Cognitive Career Theory
The Social Cognitive Career Theory developed by Lent, Brown and Hackett (1996) draws upon Bandura's (1977) self-efficacy theory. It offers a framework for career development, and accounts for the interplay between educational and vocational interests, career-related choices, and work performance.

The Social Cognitive Career Theory highlights the interaction of personal attributes, external environmental factors and behaviour in career decision-making. An important contribution of the Social Cognitive Career theory to the career development domain is that it focuses on the relationships among social cognitive variables (e.g. self-efficacy), and their relationships

with other variables in the individual's socio-contextual environment, such as gender, race/culture, family, community and political components. Brown (1999) contends that the integration of self and social context offers an opportunity for individuals to gain a sense of control over their career development and increases their career-related self-efficacy expectations. The theory states that, if individuals believe in their own ability and have a clear expectation of the outcome of their behaviour, they will behave in a way that will help them achieve their goal (Herr 2001).

From the above it is clear that there are several different viewpoints regarding career development. While researchers like Holland (1973; 1985) focused on personality by attempting to illustrate the interrelationship of personality, behaviour and careers, other researchers, like Roe (1956) used human genetics and early childhood experience as the basis for their theories of career development. Super (1957; 1962) made a profound contribution to career development by his introduction of the concept of career maturity. Crites (1981) supported this theory, with his development of the first measuring tool for career maturity.

Career development in the future

Although it is important to consider the events and accomplishments of the past century it is essential to look at where career development is going. According to McDaniels (2000) there are five issues that the field of career development is faced with in the 21st century, namely:

1. The need to increase our understanding of the concept of what a career is, incorporating a shift from occupational guidance to career development.
2. The need to sharpen the focus and stimulate further research on the concept of a life-long career.
3. The need to conduct further research with regard to career development of previously disadvantaged groups.
4. The need to conduct further research specifically in the field of skills and ability development
5. The need to optimally utilise multimedia facilities, thereby broadening the individual's information base.

It seems that the above issues are similar to the main building blocks of career maturity. It is therefore evident that career maturity will be the focus area of the 21st century. The concept will have to be researched and current knowledge will have to be applied more effectively to address the demands of career development in the future.

Career Maturity

The construct of career maturity consists of a readiness, attitude and competency to cope effectively with the career development tasks corresponding to one's life stage (Super, 1957). The assumption can be made that a career mature person is more capable of making an appropriate and realistic career choice and decision. Career mature individuals have the ability to identify specific occupational preferences and to implement activities in order to achieve their goals.

As defined earlier, career maturity is the extent to which an individual is able to master certain career developmental tasks that are applicable to his/her life stage (Langley, du Toit & Herbst, 1996). It is extremely important to identify an individual's state of career maturity in order to give appropriate career guidance. Langley, du Toit and Herbst (1996) highlighted the following aspects of career maturity:

1. Obtaining information about oneself and converting such information to self-knowledge.
2. Acquiring decision-making skills and applying them in effective decision-making.
3. Gathering career information and converting it into knowledge of the occupational world.
4. Integrating self-knowledge and knowledge of the occupational world.
5. Implementing the obtained knowledge in career planning.

Career maturity is an important field of study and the measurement thereof is critical in order to determine which developmental tasks an individual should focus on. Langley (1989) integrated the approaches of Super (1980), Crites (1981) and Westbrook (1983) and designed a scale called the Career Maturity Scale. The Career Maturity Scale measures:

1. Knowledge of self
2. Decision-making
3. Career information
4. Integration of knowledge about self and about the career
5. Career planning

The integrated approach of Langley (1989) implies that an individual needs to successfully complete certain career development tasks. If an individual is able to successfully complete the tasks as set out in Table 4 (right-hand side), his/her career maturity increases. The left-hand side of the table indicates the different steps in career maturity and implies the successful completion of the various career development tasks.

TABLE 4
THE RELATIONSHIP BETWEEN CAREER MATURITY AND CAREER DEVELOPMENTAL TASKS (LANGLEY, 1989)

Components of Career Maturity	Tasks in an integrated process approach
Knowledge of self	Needs Life roles Values Occupational Interests Other relevant factors
Decision making	Decision making Occupational choice
Career information	Occupational information
Integration of knowledge of self with knowledge of career	Integration of knowledge of self with knowledge of career
Career planning	Career planning

Osipow and Fitzgerald (1996) support the views of Langley (1989) and postulated that career mature behaviour will assume different forms depending on the context provided by an individual's life stage. The career mature fourteen-year-old individual will be concerned with assessing personal interests and abilities to reach the goal of deciding on an educational plan, while a 45-year-old career mature person will concentrate on ways to maintain career status in the face of younger competition (Osipow & Fitzgerald, 1996). The following section will focus on the empirical research done in this field and evaluate the tools available for assessing career maturity.

Empirical Research

Assessment of career maturity

As mentioned earlier, Crites (1978) developed one of the most successful and well-known instruments for the measurement of career maturity. Other instruments often used to measure aspects of career maturity include the Career Development Inventory of Super (1990), the Adult Career Concerns Inventory (Super, Thompson & Lindeman, 1988), the Assessment of Career Decision-making Inventory (Levinson, Ohler, Caswell & Kiewra, 1998), the Career Beliefs Inventory (Krumboltz, 1994), the Career Decision Scale (Levinson, Ohler, Caswell & Kiewra, 1998) & Ohler, 1998) and the Cognitive Vocational Maturity Test (Westbrook & Parry-Hill, 1973). Like the Career Maturity Inventory, the Career Development

Inventory was designed to measure both cognitive and attitudinal dimensions of career maturity. The Cognitive Vocational Maturity Test in contrast with the Career Development Inventory measures only cognitive aspects of career maturity.

The history of career maturity assessment is one marked by a series of debates over (a) the choice of criteria that define career maturity, (b) the associations between measures of career maturity, attitudes and measures of general intelligence and whether career maturity inventories can measure some aspects of intelligence and (c) the questionable reliability and validity of the measures (Betz, 1988). Although these issues are related, the criterion-referenced validity of career maturity measures is of particular concern. Although some criterion-referenced validity studies of career maturity measures exist, as cited by Crites (1978), Betz (1988) concluded that owing to problems such as small sample sizes, choice of criterion variables, and low validity coefficients, the overall evidence of the criterion-referenced validity of career maturity measures, is lacking. She indicated, as did Westbrook (1983), that obtaining strong validity evidence is crucial to the future use and application of the career maturity construct and measures thereof. Ideally, career maturity as a construct should be linked to career-related behaviours or criteria that represent vocational outcomes such as quality of career choice, implementation of that choice (follow through), job satisfaction and job-related behaviours leading to successful work performance (Betz, 1988).

Seifret (1994) investigated the practical utility of career maturity instruments for the purpose of career counselling and the influence of such counselling on career development. Based on a concurrent study Siefret (1994) noted that, it was difficult to draw clear conclusions, especially regarding the question as to whether career maturity measures contributed substantially to the long-term prediction of career adjustment and further development. Super (1990) indicated that short-term prediction may be regarded as more appropriate than long-term prediction, and the previously mentioned findings of Seifret (1994) support this assumption.

From the research conducted thus far it is evident that the subject of career maturity has been neglected. It has often been measured using majority populations as the norm, but research on diverse populations demonstrates that some of the variables used may not be applicable to all population groups.

Career maturity – empirical evidence

Research has clearly and consistently identified career maturity as an important variable in career development. The importance of career maturity for university students, in particular, is highlighted by the number of relationships between career maturity and various constructs associated with effective career development. Significant, positive relationships have been found between career maturity and academic achievement (Healy 1994), self-esteem (Khan & Alvi, 1983), career self-efficacy (Wagner, 1998) and a variety of other factors influencing career development. The complex interaction of these and other factors affects the individual's readiness to succeed in mastering the tasks appropriate to several stages of career development. Research conducted on some of the variables influencing career maturity, will be highlighted below.

Culture

Gottfredson (1986) identified twelve factors that affect career choice and which places certain populations at risk when making career decisions. Some of these risk factors include poor education, cultural isolation, low self-esteem, non-traditional interests and social isolation. These factors place women, previously disadvantage groups and individuals with disabilities at a particularly high risk when making career choices.

A study conducted in South Africa by Watson and van Aarde (1986), examining the career maturity levels of coloured students, indicate that age, socio-economic status, intelligence and gender have an influence on the career maturity levels of coloured students. The results indicate a positive relationship between age and maturity and further indicate that students with a higher socio-economic status have a higher level of career maturity.

Research conducted by Lundberg, Osborne and Miner (1997) on Anglo ninth-graders and Mexican-American students, as well as studies by Rojewski (1994) among rural economically disadvantaged African-American youths, confirmed Watson and van Aarde's (1986) findings. It was found that career immature participants were more likely to be men, part of a minority group, educationally disadvantaged and indecisive about career choice. In contrast, career mature students were more likely to be women, and part of previously disadvantaged groups. They are educationally well informed, and more decisive about their careers.

Critics maintain that most of the research done in the past on career development theories and career maturity was based on homogeneous white groups, consisting of middle-class adolescent males who experienced continuous vocational development. It is therefore difficult to generalise these findings, especially in the South African context.

Gender

Little doubt exists that gender is an important moderating variable in college students' career development. Early investigations searching for gender differences in career development are extremely limited (Luzzo, 1995). Furthermore, as many career developmentalists agree (Diamond, 1987), current occupational theories do not adequately explain the developmental process and occupational choice systems of women.

Traditional career development theory was based almost exclusively on studies of male subjects and gave little attention to the fact that for women the developmental process over the life span was different from that of men and far more complex. Although several promising attempts have been made to provide a more comprehensive theory, little exists today in the way of a fully developed theory of women's career development (Diamond, 1987).

Values

Work done by Super (1962) emphasised the importance of intrinsic and extrinsic values. A combination of these values seems to influence career development. When choosing a career it is important that the individual's work environment should allow him/her to express certain values.

In a study conducted by Walls and Galkus (1974) it became evident that both career reinforcers and career values are important in career maturity. Their sample included graduates and people busy with career rehabilitation. They found that the graduates were more career mature than the rehabilitation group. The career mature individuals focused on goals and challenges, and were generally independent. The individuals who focused on keeping busy, working alone, and who had a need for security and prestige, displayed lower levels of career maturity (Langley, 1989).

Miller's (1974) study on the relationship between work values and career maturity indicates that certain values have an influence on maturity and on career development. He found that there is a particularly strong positive relationship between work values and career maturity in females.

From the above research it is evident that certain intrinsic and extrinsic values have a definite influence on career maturity and thus on career development.

Personality
Personality, as defined by Herr (2001, p.4), can be described as "the integrated and dynamic organisation of an individual's psyche, social, moral and physical characteristics in interaction with the environment". Based on this, the assumption can be made that individuals differ in terms of personality, which in turn will influence their respective career development.

Studies by Costa, McRae and Holland (1989) indicate that several personality variables have an influence on career development and the individual's ability to effectively plan and choose a career. Taylor and Popma (1990) confirmed this in a study conducted with university students, indicating a link between certain personality variables and career development. Significant positive relationships have been identified between effective career development and extrovertive behaviour, self-esteem, interests and conscientiousness.

From the literature reviewed it is clear that career maturity is an important prerequisite for an individual to make appropriate and accurate career decisions. Career immaturity will prevent the individual from effectively progressing through the different stages of career development (Costa, McRae & Holland,1984; Taylor & Popma, 1990). The research review indicates that there are several factors influencing career maturity, and when moving towards comprehensive career guidance, these factors should be taken into consideration. Knowledge of the different factors affecting career maturity can assist counsellors in identifying certain areas of concern in order to help an individual acquire the necessary skills and knowledge to make realistic career decisions.

The concepts of career development and career maturity have been discussed and a link between career maturity, personality and cognitive ability has been suggested. In the light of the stated objectives of this study, six major hypotheses have been formulated.

Hypothesis 1: There is a statistically significant difference between the vectors of means of career mature students and career immature students in respect of the 16 Personality Factor Questionnaire (16PF).

Rationale:
It is postulated that career mature students will have more stable personalities and that they will display behavioural patterns associated with this.

Hypothesis 2: There is a statistically significant difference between the vectors of means of career mature students and career immature students in respect of general adjustment as measured by the Personal, Home, Social and Formal Relations Inventory (PHSF).

Rationale:
It is postulated that career mature students will be more self-confident, have higher self-esteem, possess higher levels of self-control, be less nervous, enjoy better health and have more positive family influences than career immature students. It is also expected that career mature students will enjoy personal freedom, be sociable, would have a well developed moral sense, have well-established formal relations and would be less inclined to give socially desirable responses.

Hypothesis 3: There is a statistically significant difference between the vectors of means of career mature students and career immature students in respect of study habits and attitudes as measured by the Survey of Study Habits and Attitudes (SSHA).

Rationale:
It is postulated that career mature students will have better developed study habits, attitudes and work methods and will avoid delaying important tasks and display a positive attitude towards educators.

Hypothesis 4: There is a statistically significant difference between the vectors of means of career mature students and career immature students in respect of the use of learning and study strategies and methods. It is further postulated that career mature students will differ statistically significantly from career immature students in respect of all the constructs of the Learning and Study Strategies Inventory (LASSI).

Hypothesis 5: There is a statistically significant difference between the vectors of means of career mature students and career immature students in respect of external locus of control, internal locus of control and autonomy as measured by the Locus of Control Inventory (LCI).

Rationale
Based on past research it is postulated that career mature students will display statistically significantly higher levels of internal control and autonomy than career immature students

Hypothesis 6: There is a statistically significant difference between the vectors of means of career mature students and career immature students in respect of cognitive ability and academic performance.

Rationale
It is postulated that career mature students will display statistically significantly higher levels of cognitive ability than career immature students and would generally show higher levels of academic performance than career immature students.

METHOD

Sample
The sample consisted of 1476 first-year students at a South-African university, tested in 1995. The ages of the students varied from 26 to 54 years, with a mean of 27,25 years and a standard deviation of 1,79 years. As far as gender is concerned 50,2% were female and 47,4% were male. Missing information accounted for 2,4%. The majority of the students were Afrikaans-speaking (840). Three hundred and sixty nine were English-speaking, and 171 spoke both English and Afrikaans. Only 23 had an African language as vernacular. Thirty-eight spoke other languages, and 35 did not indicate their home language. As far as ethnic group is concerned 89,5% were White, 1,5% were Indian, 4,4% were Coloured and 2,2% were African.

Measuring instruments
The present study is based on the test scores of students tested with a prescribed psychometric battery of tests for use by the Career Counselling Division of the university. In order to identify the personality and cognitive correlates of career maturity the following tests were selected for use in the current study.

Career Development Questionnaire
The Career Development Questionnaire (CDQ) of Langley (1990), an instrument based on the theory of Crites (1978) and Super (1962) was used to measure career maturity.

The CDQ consists of 100 items comprising five scales, namely Self Information (20 items), Decision-making (20 items), Career Information (20 items), Integration of Self Information with Career Information (20 items) and Career Planning (20 items). Each of the five scales relates to a common dimension of career maturity (Langley, du Toit & Herbst, 1996). The reliability of the CDQ for different language groups (English, Afrikaans and African languages) ranges from 0,66 to 0,82, and for first-year university students (University of Zululand and RAU) from 0,57 to 0,83. An internal consistency coefficient of 0,90 was obtained for the total score. Thus the scales are satisfactory if used for guidance purposes. The intercorrelations of the scales were also computed. They ranged from 0,45 (between the Self

Information Scale and the Career Planning Scale) to 0,65 (between the Career Information and the Career Planning Scale). The various CDQ sub-samples of the original research project consisted of first-year university students and Standard 8 and 10 pupils (Langley, du Toit & Herbst, 1996).

16 Personality Factor Questionnaire (16PF)
The 16PF was originally developed as a set of primary and elementary factor scales whereby several other personality characteristics and behavioural patterns could be predicted. The questionnaire is based on Holland's theory and contains 16 bipolar scales (called primary factors), five global factor scales and several validity scales. Fifteen of the primary factors and five of the global factors measure personality traits and the remaining factor measures cognitive ability or reasoning ability. The bipolarity of the scales indicates that two interpretable bipolar opposites can be identified which correlate negatively with one another. Designed for ages 16 and over, this inventory yields 16 scores in respect of such traits as emotional stability, impulsiveness and conformity. One reason for the success of the 16PF is that the validated special scores greatly expand the utility of the 16PF for the counsellor. These scores allow the counsellor to assess the role of personality structure in leadership, creativity and specific occupations. The instrument not only allows the respondent's interests and abilities to be examined but also allows his or her personality to be taken into consideration during occupational decision making (Conn & Rieke, 1994). Numerous validity coefficients have been reported in respect of all 16 of the scales. Reliability coefficients between 0,45 and 0,92 have been reported for the different scales by means of the test-retest method (Conn & Rieke, 1994). The internal consistency of the primary factors and validity scales range from 0,66 to 0,87.

Personal, Home, Social and Formal Relations (PHSF)
In order to establish the level of adjustment of the participants the PHSF was used. It consists of 11 scales measuring the personal, home, social and formal relations of participants. Level of adjustment is determined by the frequency with which responses, in relation to the self or the environment, are mature or immature, efficient or inefficient. The PHSF consists of 180 items and was applied to 1788 Standard 10 pupils throughout South Africa. The obtained reliability coefficients range from 0,63 to 0,94 (Fouche & Grobbelaar 1983). In respect of the initial form of the PHSF a high level of construct validity was reported. It also indicated that the PHSF consistently discriminated between the norm group and a group of boys and girls with behavioural problems.

Survey of Study Habits and Attitudes (SSHA)
The purpose of the SSHA is to distinguish between students that achieve high grades and those that achieve poor grades in respect of their study habits and attitudes. The SSHA is a tool whereby guidance counsellors can evaluate study methods, determine motivational levels, and determine the attitudes of students towards certain scholastic activities that are important for achieving good grades. The purpose of the SSHA is to identify students with inadequate study habits and study attitudes, to have a better understanding of students that display poor scholastic performance. Research indicates that the SSHA has high predictive validity in respect of academic performance. It has low correlations with different ability tests indicating that the predictive validity of the SSHA is determined by factors which are not measured by ability tests. The SSHA consists of 100 items divided into four scales. High scores on the SSHA scales are typical of students that are high performers in respect of scholastic ability. The reliability coefficients for the four primary scales range from 0,7 to 0,8, which is viewed as satisfactory. Validity coefficients were obtained by correlating the scores on each of the scales of the SSHA with the examination results of school pupils and first-year students. Highly significant positive correlations were obtained between the SSHA and examination results (Owen & Taljaard, 1988).

Learning and Study Strategies Inventory (LASSI)
The LASSI is an assessment tool designed to measure students' use of learning and study strategies and methods. The focus is on both covert and overt thoughts and behaviours that relate to successful learning and that can be changed through educational interventions (Weinstein, 1985). The LASSI consists of 10 scales. Alpha coefficients for the different scales range from 0,68 to 0,86 and test-retest correlation coefficients range from 0,72 to 0,82, demonstrating a high degree of stability of the scale scores.

Locus of Control Inventory
The Locus of Control Inventory, as designed by Schepers (1995), is based on attribution theory and social learning theory. The Locus of Control Inventory can be used for inter-individual comparisons as it is a normative instrument. A factor analysis of the Locus of Control Inventory of Schepers (1995) identified the following factors:

<u>*External control*</u>
The individual believes that outcomes are independent of his/her own behaviour.

<u>*Internal control*</u>
The individual believes that outcomes are a consequence of his/her own behaviour.

<u>*Autonomy*</u>
The individual practises an internal locus of control and prefers working alone.

The questionnaire consists of 80 items, each in the form of a seven-point scale. The Cronbach alpha coefficients for internal control, external control and autonomy are 0,832; 0,841 and 0,866 respectively.

General Scholastic Aptitude Test (GSAT)
The GSAT was constructed to measure academic intelligence or scholastic aptitude. The test is used as an aid in determining the reasoning or problem-solving ability of individuals. In order to determine its reliability, Kuder-Richardson Formula 8 and the test-retest method were used. Reliability coefficients of 0,92 and 0,89 were obtained respectively. Factor analyses in respect of different subgroups of the norm group indicated that between 60% and 80% of the variance within the factor space could be explained by a single factor (Claassen, de Beer, Hugo & Meyer, 1998). Although the contents of the GSAT subtests differ considerably, the aim of each of the subtests is to determine the problem-solving ability of students. The intercorrelations of the subtests are uniformly high and range from 0,68 to 0,83 if the GSAT is used as a power test and from 0,64 to 0,76 if it is used as a speeded test.

Senior Aptitude Tests (SAT)
The SAT was constructed for the measurement of a number of aptitudes of pupils in Standards 8, 9 and 10, and of adults. The results can be used for counselling and selection purposes. It has also been established that a fairly reliable IQ estimate can be obtained from the SAT scores for pupils between 14 and 18 years. The reliability coefficients of the SAT subtests according to Kuder-Richardson Formula 8 for tests 1 to 10, and by means of test-retest in respect of tests 11 and 12, ranged from 0,71 to 0,93 for standard 10 pupils. Numerous factor analyses of the SAT together with other variables confirmed the construct validity of these tests. The predictive validity of the tests were established by correlating the SAT subtests with the course grades the students obtained in the different school subjects at the end of the year. High validity coefficients were obtained (Fouche & Verwey, 1991).

Matriculation marks
The matriculation marks were calculated by assigning a numerical value to the obtained matric symbols. The following table indicates the conversion of matric symbols to numerical values.

Table 5
Calculation of matric mark (rademeyer & schepers, 1998)

Academic symbol achieved in matric	Numeric value per Higher Grade subject	Numeric value per Standard Grade subject
A	5	4
B	4	3
C	3	2
D	2	1
E	1	0
F	0	0

Procedure
The battery of tests was administered to the full intake of first-year university students at an Afrikaans university during their first month at the university. Testing was compulsory for all first-year students and took place over four days under strict supervision. Due to incompleteness of some records only 1476 records could be used in the sample. Absenteeism caused some of the records to be incomplete.

Statistical analysis
In planning the analysis of the data multiple regression with career maturity as dependent variable, was first considered but was not followed through on account of multi-colinearity:

The data set consisted of 62 predictors together with a single score in respect of the dependent variable (career maturity). If a multiple regression analysis had been used, only a small number of predictors would have been included in the regression equation on account of multi-colinearity. By forming contrasting groups a more detailed personality description of the career mature student would be obtained.

Based on the scores of the Career Development Questionnaire the respondents were divided into a career mature, a career immature and a middle group. Each subgroup consisted of 492 respondents. Figure 1 shows the distribution of respondents, within each of the subgroups.

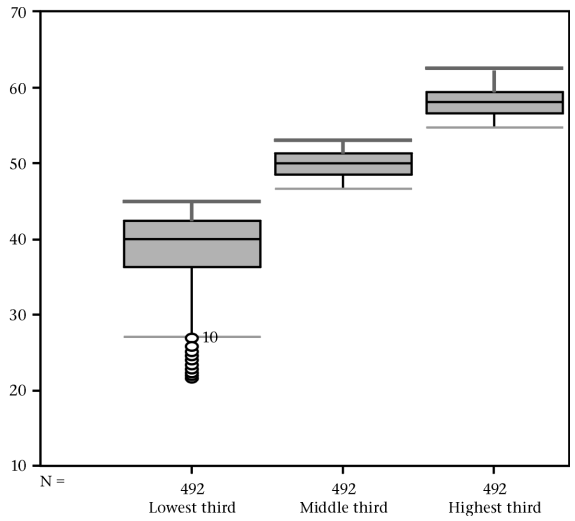

Figure 1: Distribution of respondents within each subgroup (one third), in respect of their CDQ total score

In order to determine whether the vectors of means of the three contrasting groups (career mature, middle group and career immature) differ statistically significantly in respect of the various measures of personality and cognitive ability, use was made of multivariate analysis of variance (MANOVA). If the MANOVA was statistically significant it was followed by a series of one-way ANOVAs in order to determine whether the means of the three groups in respect of the various measures differ statistically significantly from one another. Although three contrasting groups were identified, for purposes of this argument reference will henceforth be made to the low group (career immature) and the high group (career mature). Finally Tukey's Honestly Significant Difference (HSD) was used to determine whether the means of the career mature students differ statistically significantly from that of the career immature students in respect of the various personality and cognitive measures. Wherever statistically significant differences were obtained using Tukey's Honestly Significant Difference, effect sizes (d) were computed. Effect sizes were used to determine practically significant differences between the group means of career mature students and career immature students (Cohen, 1977). Effect sizes were determined by means of the following formula:

$$d = (\bar{X}_1 - \bar{X}_2)/S_{MAX}$$

where, $\bar{X}_1$ is the mean score for the career mature group, $\bar{X}_2$ is the mean score for the career immature group and S_{MAX} is the mean of the standard deviations of the career mature and the career immature group.

According to Cohen (1977) the following cut-off points are normally used in respect of effect sizes:
- effect sizes less than 0,3 indicate a very small effect and will be taken to be trivial
- effect sizes between 0,3 and 0,5 will be considered as small
- effect sizes between 0,5 and 0,8 will be considered as medium
- effect sizes larger than 0,8 will be considered as large

For purposes of this article only effect sizes with a value greater than 0,30 will be deemed practically significant although all effect sizes will be reported, given that the differences between the means are statistically significant.

RESULTS

Personality measures
16 Personality Factor Questionnaire
In order to ascertain whether the vectors of means of the three contrasting groups (career immature, middle group, career mature) differ statistically significantly in respect of the 16PF, a multivariate analysis of variance (MANOVA) was used. Following the MANOVA a series of one-way analyses of variance was done in order to determine whether there are statistically significant differences between the mean scores of the three groups in respect of the 16PF. The analyses yielded the results given in Table 6.

From Table 6 it is evident that several of the analyses of variance are statistically significant. In order to determine whether the means of career mature students differ statistically significantly from those of career immature students in respect of the 16PF, use was made of Tukey's HSD. The results are given in Table 7.

According to Tukey's HSD there are statistically significant differences between the mean scores of career mature students and career immature students in respect of several of the scales of the 16PF. In particular there are statistically significant differences between the mean scores of career mature students and career immature students is respect of Factor A: Reserved – Outgoing, Factor B: Less intelligent – More intelligent, Factor C: Affected by feelings– Emotionally stable, Factor E: Humble – Assertive, Factor G: Expedient – Conscientious, Factor H: Shy –

Table 6
One-way analysis of variance:
comparison of the means of the various subgroups of career maturity in respect of the 16PF

VARIABLES	SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F-RATIO	p(F)
FACTOR A: Reserved-Outgoing	Between groups	140,351	2	70,175	4,296	0,014*
	Within groups	24062,378	1473	16,336		
FACTOR B: Less Intelligent – More Intelligent	Between groups	34,248	2	17,124	3,623	0,027*
	Within groups	6962,453	1473	4,727		
FACTOR C: Affected By Feelings – Emotionally Stable	Between groups	1724,977	2	862,488	46,252	
	Within groups	27468,006	1473	18,648	< 0,001*	
FACTOR E: Humble – Assertive	Between groups	306,327	2	153,163	6,513	0,002*
	Within groups	34639,437	1473	23,516		
FACTOR F: Sober – Happy Go Lucky	Between groups	143,321	2	71,661	2,272	0,104
	Within groups	46468,240	1473	31,547		
FACTOR G: Expedient – Conscientious	Between groups	814,150	2	407,075	27,452	
	Within groups	21842,161	1473	14,828	< 0,001*	
FACTOR H: Shy – Venturesome	Between groups	1364,687	2	682,343	26,982	< 0,001*
	Within groups	37251,093	1473	25,289		
FACTOR I: Tough Minded – Tender Minded	Between groups	66,749	2	33,375	2,461	0,086
	Within groups	19977,419	1473	13,562		
FACTOR L: Trusting – Suspicious	Between groups	17,892	2	8,946	0,823	0,439
	Within groups	16001,675	1473	10,863		
FACTOR M: Practical – Imaginative	Between groups	98,575	2	49,287	3,263	
	Within groups	22247,059	1473	15,103	0,039*	
FACTOR N: Forthright – Astute	Between groups	296,083	2	148,041	16,076	
	Within groups	13564,313	1473	9,209	< 0,001*	
FACTOR O: Self Assured – Apprehensive	Between groups	1232,749	2	616,375	40,746	< 0,001*
	Within groups	22282,331	1473	15,127		
FACTOR Q1: Conservative – Experimenting	Between groups	16,123	2	8,062	0,753	0,471
	Within groups	15765,689	1473	10,703		
FACTOR Q2: Group Dependent – Self Sufficient	Between groups	10,541	2	5,270	0,394	
	Within groups	19679,722	1473	13,360	0,674	
FACTOR Q3: Undisciplined Self Conflict – Controlled	Between groups	110,473	2	55,236	5,556	0,004*
	Within groups	14643,843	1473	9,942		
FACTOR Q4: Relaxed – Tense	Between groups	1038,488	2	519,244	28,512	< 0,001*
	Within groups	26825,415	1473	18,211		

Note:
Wilks' Lambda = 0,844
F (32 , 2916) = 8,073; p<0,001*

Table 7
Tukey's honestly significant difference:
comparison of the means of the various subgroups of career maturity in respect of the 16PF

VARIABLES	MEANS OF SUBGROUPS			SUBGROUPS		
	SUBGROUP 1	SUBGROUP 2	SUBGROUP 3	SUBGROUP 1/2	SUBGROUP 1/3	SUBGROUP 2/3
FACTOR A: Reserved-Outgoing	10,96	11,70	11,21	0,18		
FACTOR B: Less Intelligent – More Intelligent	7,63	7,93	7,98		0,15	
FACTOR C: Affected By Feelings-Emotionally stable	14,12	15,61	16,76	**0,35**	**0,59**	0,27
FACTOR E: Humble – Assertive	13,79	14,41	14,91		0,22	
FACTOR F: Sober – Happy Go Lucky 1	5,87	16,61	16,40			
FACTOR G: Expedient – Conscientious	11,45	12,70	13,22	**0,32**	**0,45**	
FACTOR H: Shy – Venturesome	12,05	13,53	14,38	0,29	**0,45**	0,17
FACTOR I: Tough Minded – Tender Minded	8,84	9,33	8,93			
FACTOR L: Trusting – Suspicious	8,50	8,59	8,32			
FACTOR M: Practical – Imaginative	12,80	12,68	12,20		0,15	
FACTOR N: Forthright – Astute	9,86	10,57	10,95	0,23	**0,34**	
FACTOR O: Self-Assured – Apprehensive	11,55	10,84	9,36	0,18	**0,55**	**0,39**
FACTOR Q1: Conservative – Experimenting	10,43	10,60	10,68			
FACTOR Q2: Group Dependent – Self-Sufficient	9,76	9,56	9,61			
FACTOR Q3: Undisciplined Self Conflict – Controlled	9,32	9,71	9,98		0,20	
FACTOR Q4: Relaxed – Tense	11,88	11,23	9,87	0,14	**0,46**	**0,32**

Note:
The effect sizes (d) are reported below the subgroup comparisons
Effect sizes (d) greater than 0,3 are printed in bold

Venturesome, Factor M: Practical – Imaginative, Factor N: Forthright – Astute, Factor O: Self assured – Apprehensive, Factor Q3: Undisciplined Self Conflict– Controlled, and Factor Q4: Relaxed – Tense. The results indicate that the career mature students are more outgoing, display higher levels of intelligence, are emotionally stable, have higher levels of assertiveness, are generally more conscientious and venturesome. Furthermore the results indicate that career mature students are practically minded rather than imaginative, astute, self-assured and generally more controlled and relaxed. The results offer partial support for Hypothesis 1. Wherever statistically significant differences were obtained using Tukey's HSD, effect sizes (d) were also computed. The results given in Table 7 indicate that there are practically significant differences between the group means of career mature students and career immature students in respect of Factor C: Affected by feelings vs. Emotionally stable, Factor O: Self assured vs. apprehensive, Factor G: Expedient vs. Conscientious, Factor H: Shy vs. Venturesome, Factor N: Forthright vs. Astute and Factor Q4: Relaxed vs. Tense.

Personal, Home, Social and Formal Relations (PHSF)

In order to ascertain whether the vectors of means of the three contrasting groups differ statistically significantly in respect of the PHSF, a multivariate analysis of variance (MANOVA) was done. Following the MANOVA, a series of one-way analyses of variance was done in order to determine whether there are statistically significant differences between the mean scores of the three groups in respect of the PHSF. The analyses yielded the results given in Table 8.

From Table 8 it is evident that several of the analyses of variance are statistically significant. In order to determine whether the means of career mature students differ statistically significantly from those of career immature students in respect of the PHSF, use was made of Tukey's HSD. The results are given in Table 9.

According to Tukey's HSD there are statistically significant differences between the mean scores of career mature students and career immature students in respect of all the scales of the PHSF, except Sociability (S). The results shown in Table 9 indicate that career mature students are more self-confident, display higher levels of self-esteem, and are more self-controlled. It also indicates that career mature students are generally less nervous, experience generally good health, have a high regard for family influences in their lives and enjoy personal freedom. A statistically significant difference was also reported in respect of Sociability (G) indicating that career mature students have a high need for spontaneous participation in social group activities. No significant difference was found in the means of career mature students and career immature students in respect of Sociability (S). Sociability (S) indicates a need for social interaction with a specific person of the opposite sex. The results further indicate that career mature students have a good moral sense, have well-established formal relations and are less inclined to act in a sociably desirable way. The mean differences of all the mentioned variables are in favour of the career mature group, except the social desirability variable, which offers partial support to Hypothesis 2. Wherever statistically significant differences were obtained, using Tukey's HSD, effect sizes (d) were computed. The results given in Table 9 indicate that there are practically significant differences between the group means of career mature students and career immature students in respect of self confidence, self esteem, self-control, nervousness, health, family influences, personal freedom, Sociability (G), moral sense, formal relations and desirability.

A high score on the nervousness variable indicates an absence of symptoms of nervousness as expressed by anxious, purposeless and repetitive behaviour. It is clear that career mature students achieved practically significant results on the nervousness variable indicating that they are relaxed, focussed and can direct their behaviour accordingly.

TABLE 8
ONE-WAY ANALYSIS OF VARIANCE:
COMPARISON OF THE MEANS OF THE VARIOUS SUBGROUPS OF CAREER MATURITY IN RESPECT OF THE PHSF

VARIABLES	SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F-RATIO	p(F)
PHSF 1: Self Confidence	Between groups	6470,627	2	3235,314	83,110	< 0,001*
	Within groups	57340,957	1473	38,928		
PHSF 2: Self Esteem	Between groups	4943,394	2	2471,697	56,153	< 0,001*
	Within groups	64837,215	1473	44,017		
PHSF 3: Self Control	Between groups	1785,209	2	892,604	22,999	< 0,001*
	Within groups	57167,805	1473	38,801		
PHSF 4: Nervousness	Between groups	3818,969	2	1909,484	45,869	< 0,001*
	Within groups	61319,695	1473	41,629		
PHSF 5: Health	Between groups	1871,042	2	935,521	18,294	< 0,001*
	Within groups	75325,258	1473	51,135		
PHSF 6: Family Influences	Between groups	3422,150	2	1711,075	25,568	
	Within groups	98507,624	1473	66,876	< 0,001*	
PHSF 7: Personal Freedom	Between groups	2774,699	2	1387,350	17,930	< 0,001*
	Within groups	113972,100	1473	77,374		
PHSF 8: Sociability – G	Between groups	2392,928	2	1196,464	19,632	< 0,001*
	Within groups	89770,801	1473	60,944		
PHSF 9: Sociability – S	Between groups	75,729	2	37,864	0,526	0,591
	Within groups	105979,189	1473	71,948		
PHSF 10: Moral Sense	Between groups	2339,669	2	1169,834	21,302	<0,001*
	Within groups	80893,624	1473	54,918		
PHSF 11: Formal Relations	Between groups	4043,729	2	2021,864	50,304	<0,001*
	Within groups	59204,571	1473	40,193		
PHSF 12: Desirability Scale	Between groups	2648,656	2	1324,328	48,319	<0,001*
	Within groups	40371,596	1473	27,408		

Note:
Wilks' Lambda = 0,809
F(24 , 2924) = 13,652 ; p=<0,001*

Table 9
Tukey's honestly significant difference:
comparison of the means of the various subgroups of career maturity in respect of the PHSF

VARIABLES	MEANS OF SUBGROUPS			SUBGROUPS		
	SUBGROUP 1	SUBGROUP 2	SUBGROUP 3	SUBGROUP 1/2	SUBGROUP 1/3	SUBGROUP 2/3
PHSF 1: Self Confidence	27,22	29,97	32,34	**0,44**	**0,81**	**0,38**
PHSF 2: Self Esteem	24,04	26,00	28,51	0,29	**0,66**	**0,38**
PHSF 3: Self Control	25,86	26,96	28,54	0,18	**0,42**	0,24
PHSF 4: Nervousness	24,74	26,58	28,68	0,29	**0,60**	**0,31**
PHSF 5: Health	30,38	31,91	33,57	0,15	**0,37**	0,22
PHSF 6: Family Influences	27,61	29,95	31,30	0,29	**0,44**	0,16
PHSF 7: Personal Freedom	32,14	33,75	35,49	0,18	**0,38**	0,19
PHSF 8: Sociability – G	26,17	27,91	29,29	0,22	**0,39**	0,17
PHSF 9: Sociability – S	30,17	30,64	30,67			
PHSF 10: Moral Sense	29,89	31,28	32,97	0,19	**0,41**	0,22
PHSF 11: Formal Relations	27,22	29,53	31,26	**0,38**	**0,62**	0,26
PHSF 12: Desirability Scale	18,95	17,37	15,66	**0,30**	**0,62**	**0,32**

Note:
The effect sizes (d) are reported below the subgroup comparisons
Effect sizes (d) greater than 0,3 are printed in bold

Table 10
One-way analysis of variance:
comparison of the means of the various subgroups of career maturity in respect of the SSHA

VARIABLES	SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F-RATIO	p(F)
SSHA 1: Delay Avoidance	Between groups	16416,394	2	8208,197	105,776	< 0,001*
	Within groups	114304,581	1473	77,600		
SSHA 2: Work Methods	Between groups	15809,339	2	7904,669	120,184	
	Within groups	96881,612	1473	65,772	< 0,001*	
SSHA 3: Study Habits	Between groups	64444,457	2	32222,228	140,443	< 0,001*
	Within groups	337954,917	1473	229,433		
SSHA 4: Teacher Approval	Between groups	6069,579	2	3034,789	44,122	< 0,001*
	Within groups	101314,591	1473	68,781		
SSHA 5: Education Acceptance	Between groups	10823,262	2	5411,631	108,061	< 0,001*
	Within groups	73766,909	1473	50,079		
SSHA 6: Study Attitudes	Between groups	33098,846	2	16549,423	81,900	< 0,001*
	Within groups	297648,057	1473	202,069		
SSHA 7: Study Orientation	Between groups	189861,465	2	94930,732	132,907	< 0,001*
	Within groups	1052110,348	1473	714,264		

Note:
Wilks' Lambda = 0,828
F(8 , 2940) = 36,317 ; p<0,001*

Survey of Study Habits and Attitudes (SSHA)
In order to ascertain whether the vectors of means of the three contrasting groups differ statistically significantly in respect of the SSHA, a multivariate analysis of variance (MANOVA) was used. Following the MANOVA, a series of one-way analyses of variance was done in order to determine whether there are statistically significant differences between the mean scores of the three groups in respect of the SSHA. The analyses yielded the results given in Table 10.

From Table 10 it is evident that the all of the analyses of variance are statistically significant. In order to determine whether the means of career mature students differ statistically significantly from those of career immature students in respect of the SSHA, use was made of Tukey's HSD. The results are given in Table 11.

According to Table 11 there are statistically significant differences between the mean scores of career mature students and career immature students in respect of all the SSHA scores. The mean differences are consistently in favour of the career mature group, which offers full support for Hypothesis 3. Wherever statistically significant differences were obtained using Tukey's HSD, effect sizes (d) were computed. The results shown in Table 11 indicate that there are practically significant differences between the group means of career mature students and career immature students in respect of all the SSHA scores. This implies that career mature students have better adapted study habits and attitudes than career immature students.

Learning and Study Strategies Inventory (LASSI)
In order to ascertain whether the vectors of means of the three contrasting groups differ statistically significantly in respect of the LASSI, a multivariate analysis of variance (MANOVA) was used. Following the MANOVA, a series of one-way analyses of variance was done in order to determine whether there are statistically significant differences between the mean scores of the three groups in respect of the LASSI. The analyses yielded the results given in Table 12.

Table 11
Tukey's honestly significant difference:
comparison of the means of the various subgroups of career maturity in respect of the SSHA

VARIABLES	MEANS OF SUBGROUPS			SUBGROUPS		
	SUBGROUP 1	SUBGROUP 2	SUBGROUP 3	SUBGROUP 1/2	SUBGROUP 1/3	SUBGROUP 2/3
SSHA 1: Delay Avoidance	20,02	24,28	28,19	**0,49**	**0,92**	**0,43**
SSHA 2: Work Methods	23,34	27,58	31,36	**0,53**	**0,98**	**0,45**
SSHA 3: Study Habits	43,37	51,86	59,54	**0,58**	**1,00**	**0,49**
SSHA 4: Teacher Approval	24,39	27,19	29,35	**0,34**	**0,59**	**0,25**
SSHA 5: Education Acceptance	23,45	27,07	30,08	**0,52**	**0,92**	**0,42**
SSHA 6: Study Attitudes	47,85	54,26	59,42	**0,46**	**0,80**	**0,35**
SSHA 7: Study Orientation	91,21	106,11	118,97	**0,57**	**1,00**	**0,46**

Note:
The effect sizes (d) are reported below the subgroup comparisons.
Effect sizes (d) greater than 0,3 are printed in bold

Table 12
One-way analysis of variance:
comparison of the means of the various subgroups of career maturity in respect of the LASSI

VARIABLES	SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F-RATIO	p(F)
LASSI 1: Attitude	Between groups	3523,969	2	1761,984	114,538	< 0,001*
	Within groups	21506,067	1398	15,383		
LASSI 2: Motivation	Between groups	2688,758	2	1344,379	65,750	< 0,001*
	Within groups	28584,777	1398	20,447		
LASSI 3: Time Management	Between groups	5313,734	2	2656,867	81,944	< 0,001*
	Within groups	45327,274	1398	32,423		
LASSI 4: Anxiety	Between groups	3477,335	2	1738,667	55,284	< 0,001*
	Within groups	43966,675	1398	31,450		
LASSI 5: Concentration	Between groups	6177,016	2	3088,508	119,993	< 0,001*
	Within groups	35983,200	1398	25,739		
LASSI 6: Information Processing	Between groups	1230,854	2	615,427	24,348	< 0,001*
	Within groups	35335,626	1398	25,276		
LASSI 7: Selecting Main Ideas	Between groups	2281,527	2	1140,764	103,492	< 0,001*
	Within groups	15409,703	1398	11,023		
LASSI 8: Study Aids	Between groups	1660,706	2	830,353	32,149	< 0,001*
	Within groups	36108,298	1398	25,829		
LASSI 9: Self Testing	Between groups	2627,063	2	1313,531	52,470	< 0,001*
	Within groups	34997,337	1398	25,034		
LASSI 10: Test Strategies	Between groups	4082,326	2	2041,163	87,519	< 0,001*
	Within groups	32604,685	1398	23,322		

Note:
Wilks' Lambda = 0,773
F(20 , 2778) = 19,077 ; p<0,001*

From Table 12 it is evident that all of the analyses of variance are statistically significant. In order to determine whether the means of career mature students differ statistically significantly from those of career immature students in respect of the LASSI, use was made of Tukey's HSD. The results are given in Table 13. The results indicate that there are statistically significant differences in respect of all the LASSI scales. This offers full support for Hypothesis 4. Wherever statistically significant differences were obtained using Tukey's HSD, effect sizes (d) were computed. The results given in Table 13 indicate that there are statistically significant differences and practically significant differences between the group means of career mature students and career immature students in respect of all the LASSI scores, except for Information processing, where only a small effect size was found. This implies that career mature students have better developed learning and study strategies than career immature students.

Locus of Control Inventory
In order to ascertain whether the vectors of means of the three contrasting groups differ statistically significantly in respect of the Locus of Control measures, a multivariate analysis of variance (MANOVA) was used. Following the MANOVA, a series of one-way analyses of variance was done in order to determine whether there are statistically significant differences between the mean scores of the three groups in respect of the measures of Locus of Control. The analyses yielded the results given in Table 14.

Table 13
Tukey's honestly significant difference:
comparison of the means of the various subgroups of career maturity in respect of the LASSI

VARIABLES	MEANS OF SUBGROUPS			SUBGROUPS		
	SUBGROUP 1	SUBGROUP 2	SUBGROUP 3	SUBGROUP 1/2	SUBGROUP 1/3	SUBGROUP 2/3
LASSI 1: Attitude	30,05	32,40	33,91	**0,58**	**0,94**	0,39
LASSI 2: Motivation	29,04	30,80	32,44	**0,37**	**0,74**	**0,38**
LASSI 3: Time Management	22,83	25,34	27,61	**0,44**	**0,83**	**0,39**
LASSI 4: Anxiety	25,71	27,44	29,57	**0,30**	**0,70**	**0,37**
LASSI 5: Concentration	26,46	28,85	31,61	**0,46**	**1,00**	**0,54**
LASSI 6: Information Processing	27,86	28,93	30,16	0,20	**0,45**	0,25
LASSI 7: Selecting Main Ideas	16,83	18,25	19,96	**0,41**	**0,94**	**0,53**
LASSI 8: Study Aids	25,90	27,00	28,56	0,21	**0,52**	**0,30**
LASSI 9: Self Testing	25,07	26,46	28,42	0,27	**0,66**	**0,39**
LASSI 10: Test Strategies	28,50	30,70	32,68	**0,44**	**0,86**	**0,42**

Note:
The effect sizes (d) are reported below the subgroup comparisons
Effect sizes (d) greater than 0,3 are printed in bold

Table 14
One-way analysis of variance:
comparison of the means of the various subgroups of career maturity in respect of locus of control

VARIABLES	SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F-RATIO	p(F)
External Locus of Control	Between groups	54272,589	2	27136,295	105,817	< 0,001*
	Within groups	377744,551	1473	256,446		
Internal Locus of Control	Between groups	14174,346	2	7087,173	42,403	< 0,001*
	Within groups	246197,264	1473	167,140		
Autonomy	Between groups	56326,549	2	28163,274	147,045	< 0,001*
	Within groups	282120,640	1473	191,528		

Note:
Wilks' Lambda = 0,784
F (6 , 2942) = 63,557; p<0,001*

Table 15
Tukey's honestly significant difference:
comparison of the means of the various subgroups of career maturity in respect of locus of control

VARIABLES	MEANS OF SUBGROUPS			SUBGROUPS		
	SUBGROUP 1	SUBGROUP 2	SUBGROUP 3	SUBGROUP 1/2	SUBGROUP 1/3	SUBGROUP 2/3
External Locus of Control	86,52	80,42	71,74	**0,38**	**0,92**	**0,54**
Internal Locus of Control	144,90	148,57	152,49	0,28	**0,58**	**0,31**
Autonomy	129,98	136,26	144,11	**0,52**	**1,00**	**0,58**

Note:
The effect sizes (d) are reported below the subgroup comparisons
Effect sizes (d) greater than 0,3 are printed in bold

From Table 14 it is evident that all three the analyses of variance are statistically significant. In order to determine whether the means of career mature students differ statistically significantly from those of career immature students in respect of the measures of Locus of Control, use was made of Tukey's HSD. The results are given in Table 15.

According to Table 15 there are statistically significant differences in respect of external control, internal control and autonomy. The results indicate that career mature students have higher mean scores on internal control and autonomy and career immature students have higher mean scores on external control, which offers full support for Hypothesis 5. Wherever statistically significant differences were obtained using Tukey's HSD, effect sizes (d) were computed. The results given in Table 15 indicate that there are practically significant differences between the group means of career mature students and career immature students in respect of all the measures of Locus of Control.

Cognitive ability measures
The General Scholastic Aptitude Test, Senior Aptitude Tests and Matric Mark
In order to ascertain whether the vectors of means of the three contrasting groups differ statistically significantly in respect of general cognitive ability, a multivariate analysis of variance

(MANOVA) was used. Following the MANOVA, a series of one-way analyses of variance was done in order to determine whether there are statistically significant differences between the mean scores of the three groups in respect of the GSAT, SAT and Matric Mark. The analyses yielded the results given in Table 16.

From Table 16 it is evident that only two of the analyses of variance are statistically significant. In order to determine whether the means of career mature students differ statistically significantly from those of career immature students in respect of cognitive ability, use was made of Tukey's HSD. The results are given in Table 17.

Table 16
One-way analysis of variance:
comparison of the means of the various subgroups of career maturity in respect of the GSAT, SAT and Matric Mark

VARIABLES	SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F-RATIO	p(F)
GSAT: Non-Verbal IQ	Between groups	289,001	2	144,501	0,724	0,485
	Within groups	293916,014	1473	199,536		
GSAT: Verbal IQ	Between groups	489,961	2	244,980	1,439	0,238
	Within groups	250805,329		1473	170,268	
GSAT: Total IQ	Between groups	527,066	2	263,533	1,440	0,237
	Within groups	269502,866	1473	182,962		
SAT 1: Verbal Comprehension	Between groups	134,598	2	67,299	3,012	0,049*
	Within groups	32908,933	1473	22,341		
SAT 2: Calculations	Between groups	238,839	2	119,419	2,302	0,100
	Within groups	76428,161	1473	51,886		
SAT 3: Disguised Words	Between groups	123,749	2	61,875	1,701	0,183
	Within groups	53588,907	1473	36,381		
SAT 4: Comparison	Between groups	85,603	2	42,801	1,774	0,170
	Within groups	35535,565	1473	24,125		
SAT 5: Pattern Completion	Between groups	13,317	2	6,659	0,168	0,845
	Within groups	58212,707	1473	39,520		
SAT 6: Figure Series	Between groups	40,607	2	20,304	0,474	0,623
	Within groups	63075,303	1473	42,821		
SAT 7: Spatial 2D	Between groups	85,037	2	42,518	0,916	0,400
	Within groups	68362,104	1473	46,410		
SAT 8: Spatial 3D	Between groups	63,102	2	31,551	0,917	0,400
	Within groups	50683,874	1473	34,409		
SAT 9: Memory (Paragraph)	Between groups	85,432	2	42,716	2,561	0,078
	Within groups	24570,640	1473	16,6681		
SAT 10: Memory (Symbols)	Between groups	23,001	2	11,501	0,415	0,660
	Within groups	40771,413	1473	27,679		
Matric Mark	Between groups	635,009	2	317,505	9,408	< 0,001*
	Within groups	47181,832	1398	33,750		

Note:
Wilks' Lambda = 0,998
F(4 , 2944) = 0,730 ; p=0,571

Table 17
Tukey's honestly significant difference:
comparison of the means of the various subgroups of career maturity in respect of the GSAT, SAT and Matric Mark

VARIABLES	MEANS OF SUBGROUPS			SUBGROUPS		
	SUBGROUP 1	SUBGROUP 2	SUBGROUP 3	SUBGROUP 1/2	SUBGROUP 1/3	SUBGROUP 2/3
GSAT: Non-Verbal IQ	109,99	110,72	111,05			
GSAT: Verbal IQ	108,65	109,72	109,98			
GSAT: Total IQ	110,07	111,16	111,46			
SAT 1: Verbal Comprehension	17,98	18,61	18,63			
SAT 2: Calculations	18,47	19,10	19,44			
SAT 3: Disguised Words	18,49	19,15	19,03			
SAT 4: Comparison	21,13	21,66	21,60			
SAT 5: Pattern Completion	19,83	20,02	20,04			
SAT 6: Figure Series	19,13	19,40	19,53			
SAT 7: Spatial 2D	18,73	19,16	19,29			
SAT 8: Spatial 3D	19,23	19,52	19,73			
SAT 9: Memory (Paragraph)	12,68	13,19	13,20			
SAT 10: Memory (Symbols)	25,34	25,59	25,32			
Matric Mark	16,49	17,27	18,14		0,28	

Note:
The effect sizes (d) are reported below the subgroup comparisons

The results indicate that there is a statistically significant difference in respect of the mean scores of career mature students and career immature students in respect of the matric mark, but not in respect of the various measures of intellectual ability as measured by the GSAT and SAT. This offers partial support for Hypothesis 6. Wherever statistically significant differences were obtained using Tukey's HSD, effect sizes (d) were computed. The results shown in Table 17 indicate that there is only one statistically significant difference. The reported effect size of the difference between the group means of career mature students and career immature students in respect of the matric mark is 0,28, which is a small effect size.

DISCUSSION

The primary objective of the study was to determine the personality and cognitive correlates of career maturity. Statistically significant differences were found between career mature and career immature students in respect of certain personality constructs. The findings confirm the notion that career mature students are emotionally more stable than career immature students. The research could find no statistically significant differences between career mature and career immature students in respect of cognitive ability.

The research supports Holland's (1973,1985) theory indicating that personal and environmental influences have a great impact on career maturity. Stable personalities and favourable environmental influences will enable the individual to have well-defined interests and thereby help him/her to make informed decisions in terms of career development.

Career mature students have a better level of adjustment than career immature students in terms of personal, home, social and formal relations, supporting research done by Langley (1989). The findings indicate that career mature students gather information about the self and the environment, form clear goals and apply the gathered information in order to make effective career decisions. In terms of the results of the personality measures, statistically significant differences were found between career mature and career immature students in respect of self-confidence, self-esteem and self-control. Career mature students are generally more outgoing and spontaneously participate in events, discussions and tasks. The personality characteristics of career mature students indicate that they are focussed on getting tasks done, are generally assertive and astute in nature, are adventurous in their outlook on life and have a practical rather then an imaginative orientation. This supports the findings of Khan and Alvi (1983) and Wagner (1998).

It seems that higher levels of anxiety are linked with career maturity. This can be attributed to the fact that students that are career mature are also achievement orientated and that a certain degree of anxiety is linked to this. Career immature students on the other hand do not really concern themselves with academic achievement. However, research done by Fuqua, Seaworth and Newman (1987) indicated that high levels of anxiety could have a negative influence on career decision-making and planning. They indicated that career immature persons are generally more anxious and tense and do not give enough attention to career planning. Although the present study supports the findings of Fuqua, Seaworth and Newman (1987) indicating that career mature individuals are less tense, it refutes the finding that career mature individuals have lower anxiety levels. More research should be done in order to clarify this.

Strong supporting evidence indicates that career mature students avoid delaying important tasks and are able to effectively manage their time in order to complete academic tasks. They have better adapted study habits and strategies, more positive attitudes towards education and well established work methods. This confirms research done by Crites (1978) when he developed the Career Maturity Inventory. He focussed on the measurement of competencies or skills that individuals require when making sound career decisions (e.g. planning, problem solving, and self-appraisal skills) as well as on their attitude towards career decision-making (e.g., orientation towards work and willingness to be realistic and make compromises).

Statistically significant differences were found between career mature and career immature students in respect of internal locus of control and autonomy. Students with an internal locus of control have a more realistic picture of their own ability and their interaction with the environment. Career mature students will take ownership and authority to secure a future by integrating the different components of effective career development. Research conducted by Brown (1999) confirms this. Career mature students want a sense of control and ownership with regard to career decision-making and career development.

Although the expectation was that career mature students would differ statistically significantly from career immature students in respect of cognitive ability, no support was found for this premise. Statistically significant differences were however found between career mature and career immature students in respect of academic performance as derived from the matric mark. This supports studies done by Healy (1994). Despite the fact that there is currently insufficient evidence of a relationship between cognitive ability and career maturity, Gottfredson (1986) postulated that low intelligence will have an affect on career choice and thus on career maturity. This, however, is refuted by the present study. A possible explanation for this might be the fact that university students form a homogeneous group in terms of intellectual ability as university admission is linked to academic performance and indirectly to cognitive ability. A generalisation in terms of career maturity and intellectual ability can therefore not be made on the findings of the present study.

The fact that there are significant differences in respect of the academic performance of career mature students as opposed to that of career immature students are therefore not linked to intellectual ability alone. This confirms the fact that career mature students make better use of their abilities, have an internal locus of control and can effectively use knowledge and information from the environment in order to achieve good academic grades. The higher academic achievement of career mature students can thus be linked to certain personality attributes. Due to effective time management techniques and the fact that career mature students avoid delaying important tasks they are in a position to adequately plan in advance.

The present findings have profound implications for our traditional views of career development, planning and counselling. Currently strong emphasis is placed on cognitive ability in order to provide career guidance, and the impact of career maturity on career development is underrated. From the research it is evident that career maturity is of critical importance in career planning, and the success thereof should thus be seen as the starting point of any career guidance programme. Based on the present research one can draw the conclusion that, although cognitive ability as such does not have an influence on career maturity, career immature students will generally not perform as well as career mature students in their academic studies.

It is evident that the five dimensions of career maturity, namely, knowledge of self, decision-making ability, career information, career planning and the integration of the above, all relate to the ultimate choice of a career. Personality testing and the integration thereof with career maturity is thus of extreme importance. A best practice for career guidance

counsellors is to responsibly introduce the most suited career assessment instruments applicable to the specific counselling situation, and most important to introduce such at the most appropriate time.

Fostering a client's readiness to make career decisions is the cornerstone of effective career counselling and can provide the basis for further analysis and exploration of interests, aptitudes, work values and personality.

REFERENCES

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191-215.

Betz, N.E. (1988). The assessment of career development and maturity. In W.B. Walsh & S.H. Osipow (Eds.), *Advances in the assessment of career decision making* (pp. 77-136). Hillsdale, NJ: Erlbaum.

Brown, B.L. (1999). *Self-efficacy beliefs and career development*. Eric Digest Nr. 205. Retrieved November 12, 2001, from http://www.ericacve.org.

Buehler, C. (1933). *Der menschlicke lebenslauf als psychologiches problem*. Leipzig: Hirzel.

Carlson, B. (1996). *Improved career decision making*. Retrieved November 12, 2001, from http://www.noicc.gov/files/nicdm_pr.html.

Claassen, N.C.W., de Beer, M., Hugo, H.L.E. & Meyer, H.M. (1998). *Manual for the General Scholastic Aptitude Test*. Pretoria: Raad vir Geesteswetenskaplike Navorsing.

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences* (Revised ed.). Orlando, FA: Academic Press.

Conn, S. & Rieke, M. (Eds.). (1994). *16PF Fifth edition: Technical manual*. Champaign, IL: Institute for Personality and Ability Testing.

Costa, P.T., McCrae, R.R. & Holland, J.L. (1984). Personality and vocational interest in an adult sample. *Journal of Applied Psychology*, *69*, 390-400.

Crites, J.O. (1978). *Career Maturity Inventory: Theory and research handbook* (2nd ed.). Monterey, CA: McGraw-Hill.

Crites, J.O. (1981). *Career counselling: Models, methods and materials*. New York : McGraw- Hill.

Crites, J.O. (1995). *Career Maturity Inventory sourcebook*. Monterey, CA: McGraw-Hill/CTB.

Diamond, E.E. (1987). Theories of career development and the reality of women at work. In B.A. Gutek & L. Larwood (Eds.), *Women's career development*. Newbury Park, CA: Sage.

Fouche, F.A. & Grobbelaar, P.E. (1983). *Manual for the PHSF Relations Questionnaire*. Pretoria: Human Sciences Research Council.

Fouche, F.A., & Verwey, F.A. (1991). *Manual for the Senior Aptitude Test*. Pretoria: Raad vir Geesteswetenskaplike Navorsing.

Fuqua, D.R., Seaworth, T.B. & Newman, J.L. (1987). The relationship of career indecision and anxiety : A multivariate examination. *Journal of Vocational Behavior*, *30*, 175-186.

Gottfredson, L.S. (1986). Special groups and the beneficial use of vocational interest inventories. In W.B. Walsh & S.H. Osipow (Eds.), *Advances in vocational psychology* (pp. 127-188). Hillsdale, NJ: Erlbaum.

Healy, C.C. (1994). Review of the Career Maturity Inventory. In J.T. Kapes, M.M. Mastic, & E.A. Whitfield (Eds.), *A counsellor's guide to career assessment instruments* (3rd ed., pp. 269-272). Alexandria, VA: National Career Development Association.

Herr, E.L. (2001). Career development and its practise: A historical perspective. *Career Development Quarterly*, *3*, 1-16.

Holland, J.L. (1973). *Making vocational choices – A theory of careers*. Englewood Cliffs, N.J.: Prentice-Hall.

Holland, J.L. (1985). *Making vocational choices – A theory of vocational personalities and work environments*. Englewood Cliffs, N.J.: Prentice Hall.

Hoppock, R. (1967). *Occupational information*. New York: McGraw-Hill.

Johnson, S. (2000). *Career development theory*. Retrieved August 8, 2000, from http://www.careernet.state.md.us.htm .

Khan, S.B. & Alvi, S.A. (1983). Educational, social, and psychological correlates of vocational maturity. *Journal of Vocational Behavior*, *22*, 357-364.

Krumboltz, J.D. (1994). The Career Beliefs Inventory. *Journal of Counseling & Development*, *72*, 424-428.

Langley, R. (1989). *Gerekenariseerde loopbaanvoorligting: 'n Evaluering van Discover-stelsel*. Ongepubliseerde doktorale proefskrif, Johannesburg: Randse Afrikaanse Universiteit.

Langley, R. (1990). *Die Loopbaanontwikkelingsvraelys*. Pretoria: Raad vir Geesteswetenskaplike Navorsing.

Langely, R., du Toit, R., & Herbst, D.L. (1996). *Handleiding vir die Loopbaanontwikkelingsvraelys (LOV)*. Pretoria: Raad vir Geesteswetenskaplike Navorsing.

Lent, R.W., Brown, S.D. & Hackett, G. (1996). Career development from a social cognitive perspective, in D. Brown & L. Brooks (Eds.), *Career choice and Development: applying contemporary theories to practice*, (2nd ed.). San Francisco: Jossey-Bass.

Levinson, E.M., Ohler, D.L., Caswell, S. & Kiewra, K. (1998) Six approaches to the assessment of career maturity. *Journal of Counselling and Development*, *76* (4), 475-482.

Lundberg, D.J., Osborne, W.L. & Miner, C.U. (1997). Career maturity and personality preferences of Mexican-American and Anglo-American adolescents. *Journal of Career Development*, *23* (3), 203-213.

Luzzo, D.A. (1995). Gender differences in college students' career maturity and perceived barriers in career development. *Journal of Counselling & Development*, *73* (3), 319-322.

McDaniels, C. (2000). *Issues facing the field of career development and the national career developmental association in the 21st century*. Paper presented at "Words from the Wise" NCDA conference, June 23 2000.

Miller, M.F. (1974). Relationship of vocational maturity to work values. *Journal of Vocational Behavior*, *5*, 367-371.

Osipow, S.H. & Fitzgerald, L.F. (1996). *Theories of Career development*. (4th ed.). Boston : Allyn & Bacon.

Owen, K., Taljaard, J.J. (1988). *Handleiding vir die gebruik van Sielkundige en Skolastiese toetse van IPEN en die NIPN*. Pretoria: Raad vir Geesteswetenskaplike Navorsing.

Pattysmith, S. (2000) *Holland's Personality Type Theory*. Retrieved September 30, 2001, from http://www.home.texoma.net/~pattysmith/holland.html.

Rademeyer, M.M. & Schepers, J.M. (1998). Voorspelling van die akademiese sukses van eerstejaarstudente. *Journal of Industrial Psychology*, *24*, 33-40.

Roe, A. (1956). *The psychology of occupations*. New York: Willey.

Rogers, C.F. (1951). *Client-centred therapy*. Boston: Houghton Mifflin.

Rojewski, J. W. (1994). Predicting career maturity attitudes in rural economically disadvantaged youth. *Journal of Career Development*, *21*, 49-61.

Romine, D., Robinson, J. & Owens, Z. (1999). *Roe's theory of Career Development*. Retreived February 3, 2001, from http://www.coe.siu.edu.

Schein, E.H. (1977). *Organisational Psychology*. Englewood Cliffs: Prentice-Hall.

Schepers, J.M. (1995). *Die Lokus van Beheer Vraelys: Konstuksie en evaluering van 'n nuwe meetinstrument*. Ongepubliseerde referaat gelewer tydens die Bedryfsielkunde Kongres.

Sears, S. (1982). A Definition of Career Guidance Terms: A National Vocational Guidance Association Perspective. *The Vocational Guidance Quarterley*, *31*, 137-143.

Seifert, K.H. (1994). Improving prediction of career adjustment with measures of career development. *Career Development Quarterly*, *42* (4), 353-367.

Sharf, R.S. (1997). *Applying career development theory to counselling*. (2nd ed.). Pacific Grove, CA: Brooks/Cole.

Super, D.E. (1957). *The psychology of careers*. New York: Harper & Row.

Super, D.E. (1962). The structure of work values in relation to status, achievement, interests and adjustment. *Journal of Applied Psychology*, *6*, 232-239.

Super, D.E. (1977). Vocational maturity in mid-careers. *The Vocational Guidance Quarterly*, *6*, 294-302.

Super, D.E. (1980). A life span, life-space approach to career development. *Journal of Vocational Behavior*, *16*, 282-298.

Super, D.E. (1990). A life-span, life-space approach to career development. In D. Brown & L. Brooks (Eds.), *Career choice and development: Applying contemporary theories to practice* (2nd ed.), (pp. 197-261). San Francisco: Jossey-Bass.

Super, D.E., Thompson, A.S. & Lindeman, R.H. (1988). Adult *Career Concerns Inventory: Manual for research and exploratory use in counselling*. Palo Alto, CA. Consulting Psychologists Press.

Taylor, K.M. & Popma, J. (1990). An examination of the relationships among career decision-making, self-efficacy, career salience, locus of control and vocational indecision. *Journal of Vocational Behavior*, *37*, 17-31.

Tiedeman, D.V. (1979). *Career development: Designing our career machines*. New York: Character Research Press.

Wagner, J. (1998). *Career Development and Gender, Race and Class*. Retreived July 6, 2001, from http://www.nifl.gov.

Walls, R. T. & Gulkus, S.P. (1974). Reinforcers, values and vocational maturity in adults. *Journal of Vocational Behavior, 29*, 7-16.

Watson, M.B. & van Aarde, J.A. (1986). Attitudinal career maturity of South-African Coloured high school pupils. *Journal of Vocational Behavior*, *29*, 20-33.

Weinstein, C.E. (1985). *Learning and Study Strategies Inventory: User's Manual. Die Loopbaanontwikkelingsvraelys*. Texas: Department of Educational Psychology.

Westbrook, B. W. (1983). Career maturity: The concept, the instruments, and the research. In W. B. Walsh & S.H. Osipovr (Eds.), *Handbook of vocational psychology*. (Vol. 1, pp. 61-303). Hillsdale, NJ: Erlbaum.

Westbrook, B. W. & Parry-Hill, W. (1973). The measurement of cognitive vocational maturity. *Journal of Vocational Behavior*, *3*, 239-252.