

INFLUENCE OF CAREER EDUCATION ON  
CAREER CHOICES

By

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of the requirements for the degree of  
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My beloved wife, Mrs Carmen Danariah for typing this dissertation and, for the inspiration and positive support she has given me throughout this study period.

To Almighty God for strength He provided me with.

## SUMMARY

This study investigates the influence of career education on career choices. The aim was to find out if there is any significant difference amongst learners in their career choices. The second aim was to establish the relationship, if any between gender and career choices.

To this end, a questionnaire was administered to a representative sample of high school learners from Aquadene Secondary and Richards Bay Secondary in the Empangeni District of Education.

The present study revealed that there is a significant relationship between learners' fields of study and their career choice. Findings also reveal that there is no relationship between learners' gender and their career choice. This shows that there is very little difference between male and female learners choice of careers. As a result learners are choosing careers across various fields irrespective of gender.

**OPSOMMING**

Hierdie studie ondersoek die invloed van beroep opvoeding op beroep keuse. Die eerste doel was om te bepaal of daar enige beduidende verskil onder leerlinge in hulle beroep keuse bestaan. Die tweede doel was om die verhouding tussen geslag en beroep keuse te bepaal.

Met die doelstellings voor oë is 'n vraelys voorgelê aan 'n verteenwoordigende groep hoërskool leerlinge van Sekondêreskool Aquadene en Sekondêreskool Richardsbaai in die Empangeni distrik.

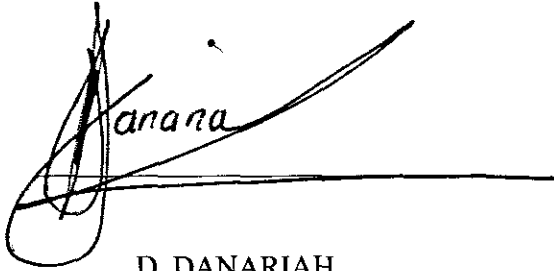
Die huidige studie het getoon dat daar 'n beduidende verhouding is tussen leerlinge se skool vakke en hulle beroep keuse. Dié navorsing studie het getoon dat daar geen verwantskap is nie tussen leerlinge se geslag en hulle beroep keuse. Dit verwys dat daar baie min verskil is tussen skool vakke en leerlinge se beroep keuse. Leerlinge kies beroepe dwarsdeur verskillende beroepe ongeag van geslag.

**DEDICATION**

To my late mom, Mrs R. Danariah whom I pay tribute to.  
May you always guide me through life's challenges.

**DECLARATION**

I, the undersigned, hereby declare that this dissertation is my own work and that it has never been presented at this or any other university in order to obtain a degree.

A handwritten signature in black ink, appearing to read 'Danariah', is written over a horizontal line. The signature is stylized with a large loop on the left side.

D. DANARIAH

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## **CHAPTER ONE**

### **1. Introduction**

#### **1.1 Motivation for an investigation in this field**

School guidance and counselling services ought to be designed and implemented to meet the needs of the learners. High school guidance programmes should operate in a *preventative way and attempt to equip learners with information, skills and attitudes to make a wise career choice*. However, there are times when learners who have to make career choices and are unable to do so, may also be unable to capitalise on the career choices that come their way. Therefore the researcher is of the opinion that learners who are exposed to career education will make realistic career choices than those denied career education.

*Learners who are exposed to career education will be well equipped to make wise career choices*. The purpose of career education is to enhance an individual's ability to make career choices based upon his strengths, interests and goals (Cochran, 1994).

Stoney (1984) suggests that the guidance needs of many students can be met largely through career information services. Stumpf, Austin and Hartman (1984) point out that, provided information is accurate and used effectively, individuals should therefore select more suitable job opportunities.

Counsellors and senior pupils consider vocational or career needs as most important (Ahia & Bradley, 1984). Some of the pupils' needs are for career information and resources (Ahia & Bradley, 1984), finding jobs (Cherry & Gear, 1987) and for career experiences (France, Jen, Huang, Si & Zhang, 1991).

In contrast learners who are not exposed to career education will not be able to make suitable career choices. According to Lee (1990), African Americans and other minority groups face unique socio-political problems in career development. Life circumstances and a history of unfair access to the labour market have been problematic for African Americans (Kimbrough & Salomone, 1993), resulting in their under-representation in higher education and other dilemmas that have confined them to lower

level jobs that offer little opportunity for professional growth (Carter & Wilson, 1992; Herr & Gramer, 1996).

Access to lucrative, financially rewarding careers has eluded most African Americans because they lack understanding of the labour market (Leung, 1995). This lack of understanding, inadequate training and career education has resulted in restrictive vocational choice patterns for African Americans as well as economic disparity (Cheatam, 1990).

According to Bowman (1993), Dillard and Campbell (1982), Dillard (1980) a lack of knowledge of career planning and poor career decision-making are factors influencing the choice of one's career.

Thus school guidance was designed to bring learners "into contact with the rest of the world in such a way that they are taught life skills and survival techniques which enable them to direct themselves towards the world of work" (National Education Policy Investigation, 1992, p. 10). Crites (1969) stated that for vocational choice to occur individuals must possess alternatives, motivation and the freedom to choose. The above mentioned is the ideal, and career education is thus clearly an integral part of school guidance. The reality however is very different.

A number of writers have commented on the constraints placed on the majority of learners in South Africa; choices were limited by job reservation in apartheid structures, poor achievement and negative self-concept that were a result of an impaired school system (Hickson & White, 1989; Naicker, 1994; Watts, 1980). School guidance was thus doomed to fail when one considers its intended goals in relation to the context it operated in.

Furthermore, in many schools career education was compromised owing to the limited number of trained personnel and the allocation of school guidance to teachers who did not have the required number of teaching periods and thus were allocated school guidance. This led to guidance being subsumed by examination subjects that were perceived as having more status. Furthermore, guidance has generally been accorded minimal status by administrators and teachers who are ill equipped to handle the professional demands involved (Lombo, 1993).

Bloch (1996) points out that in many state schools, administrators and counsellors have limited awareness of, and commitment to workforce preparation policies and career development objectives.

There are also great variations in the provision of career education across various former Departments of Education in South Africa. For example, in Kwa-Zulu Natal there was no provision for career education in many schools even though school guidance was part of the school curriculum (Mtolo, 1996).

Chuenyane's study (1983) indicated that about 90% of the black secondary school population had "serious career planning problems". This has been underlined by a number of studies in the last decade, (Mtolo, 1996; Ntshangase, 1995; Skuy, Hoar, Oakley-Smith & Westaway, 1985), where learners have pleaded for career education in secondary schools. Therefore it is imperative that career education plays a pivotal role in guiding and providing its learners with the necessary information towards a vocational future.

Pryor (1985) states that learners who have experienced the following situations pose particular challenges for career educators, if they have experienced limited exposure to the world of work, little access to career service, no knowledge of large tertiary institutions and a narrow range of social contact. The researcher is in agreement with Pryor. Large numbers of South African youth and adults would fit into one or more of the categories mentioned above. This strongly emphasizes the need for career education in this country.

According to Herman (1970), 94% of matriculants in his study experienced problems with career choices. As a result most teenagers in South Africa receive little or no guidance when considering their guidance roles.

In a contrast study of students' perceptions of guidance teachers in South African schools (Skuy et al., 1985), students were found to have a poor image of guidance and guidance teachers. The researcher is in agreement with Herman (1970) and Chuenyane (1983) that lack of career guidance will have a negative impact on the learners' career choices.

At the other end of the spectrum, certain well resourced schools had comprehensive programmes (Harris, 1997). In many Black schools annual visits by itinerant officials who were briefly trained to administer career tests, was the only provision to meet the needs of the learners. According to Dovey (1980) this was a form of social bookkeeping for statistical and research purposes.

Avent (1988) notes four major thrusts of careers work in secondary schools in the United Kingdom. The first major thrust is the fostering of knowledge about courses in tertiary institutions, their links to career choices and the entry requirements. Secondly, providing information on the whole spectrum of possible occupations, the lifestyle associated with different work contexts and their opportunities available. Thirdly, developing self-awareness through understanding individual abilities, interests, ideals and values, as well as developing personality characteristics, this may lead to success in achieving career aspirations. And the fourth major thrust according to Avent, is practising decision-making and developing life skills for coping with transitions.

Lapan, Gysbers and Sun (1997) conducted a state wide study of high schools where counsellors implemented a comprehensive guidance programme. Students reported that more career information was being made available and career education prepared them for their future. The researcher agrees with Lapan, Gysbers and Sun that appropriate career education will influence career choices in the future.

Career education is needed because more and more South Africans are seeking counselling for career related matters that may affect their careers, and career counsellors must be informed of the special needs of their South African clients. With this in mind the present study will outline the influence career education has on career choices within the South African school system.

## **1.2 Statement of the problem**

The present study attempts to unravel the following research problems:

1.2.1 Does career education influence career choice?

1.2.2 Does gender influence career choices?

### **1.3 Operational definitions of terms**

#### **1.3.1 Career Education:**

In this study career education refers to schools implementing career programmes to educate learners about planning and preparing for a future career choice. Such programmes should be effective so that realistic career choices are made. Therefore the researcher agrees that career education in schools will influence career choices.

#### **1.3.2 Career Choice:**

In this study career choice refers to a learner's ability to make a realistic career choice based on the career education received in schools. The researcher is of the opinion that if career education commences in schools, then students will be in a position to make effective career choices.

There is a direct relationship between the Career Preference Inventory (CPI) of the Career Mentor and aims one and two of this study. The CPI addresses aim one by understanding learners career preferences based on the career education learners receive in school. The CPI also addresses aim two by indicating whether career preferences differ according to gender.

### **1.4 Aims of the investigation**

The aims of this study are :

- 1.4.1 To determine whether career education influences career choice.
- 1.4.2 To ascertain whether gender influences career choice.

• .



## **1.5 Hypothesis**

The following hypotheses are based on the literature reviewed in this particular field. The hypotheses are designed to fulfil the aims of the study.

Hypothesis 1: There will be no differences among learners in their career choices.

Hypothesis 2: Gender will have no influence on career choice.

## **1.6 Sample**

For the purpose of the study 170 respondents were selected. The sample consisted of 170 individuals from a larger group of persons i.e. population. Simple random sampling method was used, whereby 170 subjects were selected from the population of Richards Bay Secondary and Aquadene Secondary schools, so that all members had the same probability of being selected. The procedure used a table of random numbers (Blanche & Durrheim, 2002). Each learner was assigned a number from the total numbers of learners belonging to grade 10, thus 170 learners was drawn from the population from both schools. The total sample was 170 learners.

## **1.7 Measuring instrument**

The Career Mentor is a computerized career decision support system instrument developed by Human Sciences Research Council (1998). Part A of the questionnaire which covers biographical data of the respondent addressed aim two of the study. Part B, the Career Preference Inventory which constitutes 126 items covering career likes and dislikes, addressed aim one of the study. The participants filled out the questionnaire consisting of open ended and closed ended questions. The researcher will then enter the data gathered onto the computer programme of the Career Mentor. This process avoided the time delays as there were a limited number of computers available for use. Thus, the Career Mentor was used to meet the research aims of this study. The Career Mentor assists with the understanding of one's career preferences by identifying whether school subjects are chosen according to career choices. This computerized

programme provides information on occupations that link up with career preferences so one can make a well informed career choice. The Career Mentor also provides information on financial assistance and with special training one needs in order to pursue a career of one's choice.

Proposed method of data analysis:

The manner in which data was analysed was left flexible to permit qualitative and quantitative analyses. The Chi-Square statistical technique was used to analyse data collected from the sample.

## **1.8 The plan of study**

### **1.8.1 CHAPTER ONE**

This chapter consists of the motivation for the investigation in this field, statement of the problem, aims of the study and a plan for the whole scientific report.

### **1.8.2 CHAPTER TWO**

Chapter two provides a theoretical background to the study. This background discusses previous research done in this field.

### **1.8.3 CHAPTER THREE**

This chapter entails empirical investigation, research design and methodology of the study. It gives attention to the sample group and the Career Mentor.

### **1.8.4 CHAPTER FOUR**

This chapter contains the analysis and interpretation of the data. The hypotheses formulated in chapter three are tested in this section.

## 1.8.5 CHAPTER FIVE

This chapter concludes the research report with the inclusion of recommendations.

## **CHAPTER TWO**

### **REVIEW OF PREVIOUS WORK DONE IN THIS FIELD**

#### **2.1 Introduction**

Career psychology in South Africa can be described as being, emerging or still in its formative stages of development. While several fundamental features of discipline are present, its defining anchors and mission have not been meaningfully integrated because of its dysfunctional gestation. The origins, growth and transformation of career psychology in South Africa draw heavily from its main wellspring in the United States of America. Parsons (1909) is credited with spearheading the career guidance movement, which sought to prevent the exploitation of workers by bringing in reforms in education and social institutions to help workers choose jobs that matched their abilities and interests. Parsons also tried to help unemployed school leavers find suitable employment. His enduring contribution to career psychology was his conceptual framework, for helping an individual select a career (Zunker, 1990).

In South Africa, the history of career psychology has been less illustrious and more contentious. Politics, economics and prevailing social conditions have affected the nature and form of career psychology in South Africa. Crites (1969) identified three conditions for vocational choice to occur: an individual must possess alternatives, motivation to choose and freedom to choose. These central assumptions of career development theory have been violated in the lives of many South Africans (Osipow & Littlejohn, 1995). To trace the career paths of the majority of South Africans would reveal a picture of foreclosed choice and little intrinsic motivation. According to Herman (1970) 94% of matriculants experienced problems with career choices. This was supported by Chuenyane (1983) findings that 90% of high school pupils had serious career planning problems.

From an early stage, education was deployed to perform a strategic gate keeping function for regulating career development. De Jong, Ganie, Naidoo and Prinsloo (1994) described school guidance and counselling in black schools in South Africa as being characterised by marginalisation, discrimination, under-resourcing and underdevelopment. The National Educational Policy Investigation (1992) found that

guidance and counselling in South Africa has been neglected and did not exist for the majority of the people.

## **2.2 The influence of exposure to career education**

Career education in schools should be designed and implemented to meet the needs of the pupils. High school guidance programmes should operate in a preventative way and attempt to equip pupils with information, skills and attitudes so that they can successfully negotiate the challenges of adolescence. If school guidance lessons are to meet the pupils' needs then they must address the expressed needs of the pupils.

Stoney (1984) suggests that guidance needs of many students can be met through career information services. Stumpf, Austin and Hartman (1984) pointed out that provided information is accurate and used effectively, individuals should select more suitable job opportunities. Gordon (1983) cites the unrealistic aspirations and expectations of graduate recruits and suggest more attention to these might improve matters. Parsons (1985) shows that turnover is related to unmet expectations whilst Boys (1984) feels that some undergraduates expecting to be unemployed might not be if they were better informed.

Watts (1977) points out that unsupported provision of information makes certain assumptions whilst King and Miller (1984) stress client readiness has a prerequisite of careers information consumption.

Guidance has been accorded minimal status by administrators and teachers who are ill-equipped to handle professional demands (Lombo, 1993). The international literature on school guidance affirms the main aim of effective guidance programmes, is to address the needs of the people (France, Jen, Huang, Si, & Zhang, 1991).

Researchers in African countries embarked on needs assessment studies in the belief that ' . . . if educational and personal counselling needs of students are adequately addressed, there may be a reduction in drop-out rate and unemployment' (Ahia & Bradley, 1984). South African educational authorities also claim to realize the importance of addressing needs. The problem is well expressed by Pietrofesa,

Bernstein, Minor and Stanford (1980). Is there a close match between what the guidance programme intends to achieve and what students actually need?

In South Africa at present this question cannot be answered, for little research has been done into what pupils need (Chuenyane, 1983, Euvard, 1992). Guidance in schools must establish itself as a needed service; it can no longer rely on its inherent good intentions (Hutchinson & Bottorff, 1986). Financial restraints and social trends demand that needs be assessed in order to implement effective guidance programmes (Russo & Kassera, 1989). This is pertinent in South Africa as it embarks on a concerted programme of reconstruction and development with limited resources.

Career needs are considered by counsellors (Bowman, 1987) and senior pupils (Ahia & Bradley, 1984) to be most important. Among pupil needs, the most commonly mentioned are career information and resources (Ahia & Bradley, 1984; Cherry & Gear, 1987; France et al., 1991), help in choosing a career (Ahia & Bradley, 1984), finding jobs (Cherry & Gear, 1987), and for career experience (France et al., 1991).

South African studies by Chuenyane (1983), Gama (1984) and McGregor (1988) all showed that pupils are interested in learning more about careers and the process of choosing wisely. Ahia and Bradley (1984) found that Nigerian pupils had more career needs than educational needs and proposed that work begin initially in the vocational field.

Bowman's (1987) high school counsellors ranked career as the most important topic for pupils. Collison (1982), however, found that pupils ranked career choice as a crucial problem for their peers and themselves. Cherry and Gears' (1987) study showed that pupils ascribed great importance to the role of the career adviser at their schools.

On the other hand, France et al., (1991) indicate parents are more concerned about issues of career choices than pupils. The purpose of career education is to enhance an individual's ability to make career choices based on one's strengths, interests and goals (Cochran, 1994).

There has been much professional attention paid to the importance of the school counsellors' role in career development of students. According to Gysbers (1987)

career guidance counsellors contribute to students' life long development. Career counsellors that are well trained in career development need to play an instrumental role within the school community (Gysbers, 1997). School counsellors need to enter into collaboration with teachers, advisors and parents to ensure the link between school and work. According to Korman (1992) the career counsellor must provide opportunities for helping clients to understand their interests, abilities and values. Korman further recommends that career counsellors assist their clients in networking with "significant others" who impinge on their lives.

Similarly, employers need to do more to articulate to schools their needs in terms of learner outcomes and skills (Glover & Marshall, 1993). According to Bowman (1993) and Dillard (1980) a lack of positive work experience, poor career planning, lack of knowledge of career opportunities and poor career decision making are factors that influence career accessibility.

Increased attention has been focused on specific career development needs of school students (Lapan & Gingeleski, 1992). Mau (1995) found that considering career decisions, students turned to peers for advice and to under utilized counsellors. In addition young women were less likely than young men to approach counsellors for career assistance.

Mau (1995) concluded that special efforts needed to be made to more actively involve all students in career planning. Carr and Schmidt (1994) found that high school students are interested in information regarding careers. Mau (1995) noted that effective classroom interventions have the advantage of reaching out to far greater number of students.

Murgatroyd's (1977) study showed that students perceived counsellors as teachers with administrative duties and saw them helpful with career matters. In another case (Siann, Draper, & Cosford, 1982) students saw teachers with guidance responsibilities as caring and concerned. They are however more effective than subject teachers.

According to Skuy et al., (1985) South African students were found to have a poor image of guidance teachers and guidance. Teachers on the other hand overrated

guidance teachers as students most preferred source of help and to underestimate parents and peers as preferred source.

Hong Kong students by contrast perceive teachers with guidance responsibilities as having a role in improving students' school performance, and helping them to adapt to school life (Ko & Wong, 1990).

Guidance had been regarded as a co-operative enterprise (Miller, 1978). The way teachers perceive guidance and their role in guidance has significant implications for school provision of guidance.

Similarly students' views of guidance are important. However there has been neglect of the importance of views of students in educational planning. This neglect is due to the fact that educators see students' viewpoint as threatening rather than confirming (Lang, 1983).

Career exploration has been conceptualised as these purposeful activities, directed towards enhancing knowledge of the self and the external environment that individuals engage in to foster progress in career development (Blustein, 1992; Jordaan, 1963; Stumpf et al., 1983).

According to Super, Thompson, Lindeman, Jordaan and Myers (1981) the concept of readiness regarding career choices is considered attitudinal factors (planning and exploring) and cognitive factors (decision making and information knowledge).

From the developmental point of view, career educators should supply students with an array of information and experiences that will foster their planfulness, exploration and their decision making (Hoyt, 1975).

Interventions designed to improve readiness through classes, workshops and computer assisted counselling has been documented as successful (Phillips, 1992).

According to Super (1955) career maturity is whether or not the vocational development of an individual is appropriate for his age. Savickas (1984) defines career



maturity as the readiness of an individual to make informed, age appropriate career decisions and cope with career development tasks.

According to Crites (1969) career maturity includes both affective and cognitive dimensions. Cognitive dimensions are represented by career choices whereas affective dimension is represented by attitudes towards career decision making process. Research reveals that young women have higher levels of career maturity than young men (Luzzo, 1995; Rojewski, 1994).

Career decision making presupposes choice. It assumes that individuals have at least two choices available to them. They then need to make a decision that will yield an optimal or satisfactory outcome. In South Africa many people seldom have the luxury of choosing a tertiary institution for further study or selecting an occupation.

There are times when individuals have to make career choices and those unable to do so may be unable to capitalise on career choices that come their way. The researcher believes that counsellors, who presume that teaching career decision making skills to unskilled people is an irrelevant endeavour, are doing them a disservice. Individuals who don't understand these skills will be disadvantaged when making career choices.

According to Wanberg and Muchinsky (1992) career decided students who believe they have personal control over their lives, make good decisions and consider their future career important to them.

Wanberg and Muchinsky (1992) reported that somewhat decided school students displayed higher levels of anxiety than decided students. They also showed low levels of self-clarity and self-esteem. Newman (1990) suggests that such a group of students made premature choices and are thus uncomfortable or unconcerned about their choices. Vondracek (1990) reported a group of students changed from decided to undecided over a six month period. High school girls were most apt to change because of a lack of occupational information or because certain occupations have a great appeal.

All of these researchers indicated that somewhat decided students need academic and career counselling. Some of these students who make "major changes" lack appropriate

occupational and self-information. Somewhat decided students may be unrealistically influenced by positive prospects in the job market (Wanberg & Muchinsky, 1992). Their concern may lead to a feeling of discomfort or various levels of anxiety. These students need advice and counselling as much as undecided students (Goodson, 1981; Larson & Heppner, 1985). A counsellor may ask them to retrace the reason for their decision, information they used and how others influenced their choice.

Van Matre and Cooper (1984) suggested that counsellors discuss students' career development history with them concentrating on improving decision making skills. Depending on the severity of anxiety these students may need extensive personal counselling before the implementation of a career decision. They may need counselling for the lack of confidence in their ability to perform adequately and their high goal instability.

Lucas and Epperson (1990) found that tentatively undecided students felt comfortable with themselves and their vocational identity level as relatively high. Cohen, Chartrand and Jowdy (1995) found these ready to decide students had fewest career decision difficulties. Lucas and Epperson (1990) described them as well adjusted and confident that a decision will be made when it is right.

On the other hand, Krumboltz (1992) points out that career indecision may not always be a negative term in that one may be undecided when one is merely keeping one's options open. Krumboltz added there is much social pressure for people to make career decisions and this can lead to unnecessary anxiety and uncertainty for individuals. Career indecision has been related to low self-esteem (Kishor, 1981), lack of future structure (Savickas, Silling & Swartz, 1984) and low work role salience (Stead, 1988).

Career undecidedness is synonymous with simple indecision (Crites, 1981). Salomone (1982) views undecidedness as a rational cognitive issue with a developmental aspect, that is, it may or may not be developmentally appropriate for one to make a decision. Career undecided people may need counselling regarding career barriers they could be encountering. Once undecided people have received competent guidance they should become less anxious and make satisfactory decisions.

According to Hartman, Fuqua and Blum (1985) indecisiveness, also known as chronic indecision, is due to psychological barriers preventing the individual from making career decisions. Holland and Holland (1977) refer to indecisiveness as “the outcome of a life history in which a person has failed to acquire self-confidence, sense of identity, self and environmental knowledge to cope with vocational decision making.

Salomone ((1982) suggests that indecisiveness is characterized by an inability or refusal to make decisions regarding the career decision making process. Serling and Betz (1990) found that a fear of commitment is related to career indecisiveness. They view fear of commitment as a difficulty in making important career decisions owing to perceived negative outcomes after the decision has been made. The indecisive person will need personal counselling in identity, self confidence and maturity issues (Salomone, 1982). According to Salomone (1982), the counsellor should provide long term support, refrain from giving advice, assist the client to confront his or her responsibilities and allow the client to explore the self. Parsons (1909) felt that the counsellors’ job was to help an individual to see the necessary information correctly and reach the correct conclusions.

Tiedeman (1961) identified two major steps in career decision making: a) anticipation and b) implementation and adjustment. In the anticipation period, people explore a variety of alternatives. Alternatives are clarified so a choice can be made. In the implementation and adjustment phase individuals implement their choice and then shape or rearrange them based on how satisfactorily the choices respond to realities of the environment.

Mendoza and Siess (1976) found that students displayed significant growth in vocational problem solving behaviour when decision making strategies were taught to prepare them for making vocational choices. Effective injections of decision making in school curriculum would demand that educators provide students with opportunities to make meaningful decisions. A successful programme should increase a student’s personal commitment to learning (Tiedeman, 1976).

According to Ellis and Tiedeman (1970), the job of a counsellor has become one of guiding the student through the process. The counsellor performs a directive role in organising the process but takes a non-directive position on the individuals' actual choice and its outcome.

Holland and Holland (1977) reported three types of undecided students. The first seemed to delay a decision until reality sets in. The second group is slightly immature, anxious and alienated. The third group display the same characteristics as the second group but to a greater degree.

Multon, Heppner and Lapan (1995) identified a group of undecided high school students whom they termed developmentally normal. They speculated that this group needed either pertinent information about themselves, the world of work and decision making skills.

Rojewski (1994) identified a group of high school students as reporting high levels of indecision but holding mature career attitudes. These students identified tentative career possibilities but admitted they needed occupational information and support before they select one. Savickas and Jarjoura (1991, pp. 87) described these students as "crystallizing a preference through broad exploration of self and occupation". Developmentally undecided individuals experience a normal transition in which they build their competencies to perform the developmental task required to make a commitment to a choice. Because information deficits seem to be paramount with this group, psycho educational interventions seem well suited (Chartrand, 1994).

Indecisive individuals have difficulty making decisions in many aspects of their lives. Wanberg and Muchinsky (1992) reported that seriously undecided students in their study had low levels of vocational identity and self-esteem. They had low levels of knowledge about educational and occupational alternatives. Lucas and Epperson (1990) also reported undecided students showed low levels of vocational identity and dependence on others for reinforcement and advice.

Such students may not be far from making a choice but something, not someone, is blocking them from pursuing it (Savickas & Jarjoura, 1991). Their personal concerns must be addressed before career exploration activities can occur.

Van Matre and Cooper (1984) indicated that students who are indecisive need long term counselling that concentrates on vocational dysfunction and delay. Such individuals show great anxiety and display negative personality characteristics that interfere with decision making.

Salomone (1982, pp. 134-135) suggested that counsellors must deal with “who I am”, “who I want to be” issues with indecisive individuals. He suggested confronting them in a supportive relationship. Larson and her colleagues (1988) suggested that such students benefit from more structured and extensive learning situations.

Lucas (1993) discovered that undecided students who sought help with career decision making in a counselling centre could be recognised and directed to differential intervention strategy.

Tertiary institutions are seen as having a career education responsibility. Due to changing economy and high rate of unemployment, career education needs to be seen as an integral and interactive part in higher education. Research studies show that 50% or more of all college students have career related problems (Gordon, 1982; Healy & Reilly, 1989; Weissburg, Berentsen, Cravey, & Heath, 1982).

Using a sample of 956 students, Chi (1994) studied the types of career decision making styles. This author found that 27,09% reported they had made a career choice but experienced discomfort with it. Another 25,10% indicated they were undecided about their career and experienced discomfort about the lack of choice. In sum ¼ of students made a decision but felt uncomfortable and ¼ of students had not made a decision and felt uncomfortable.

Herr, Rayman and Gans (1993) stated when undecided students enter institutions many counsellors and educators use group treatment in the form of career education courses as an alternative to one on one counselling.

Herr et al., (1993) point that career indecisive students, exist in significant numbers and experience different problems requiring different interventions. Davies and Horne (1986) indicated that career education is effective in increasing career decisiveness as

small group or individual counselling. These research findings show that students will be more certain about career choices if enrolled in career education classes.

Peng and Herr's study (1999) indicated that career education courses demonstrated significant changes in career certainty and career indecision.

On the other hand, Borders and Archadel (1987) stated that one's self-worth has a crucial impact on career decision. Taylor and Betz (1983) found out that low self-efficacy students were more undecided about decision making and less confident in completing decision making tasks.

Xie (1990) found that self-efficacy is highly correlated with subjects' career uncertainty. Self-efficacy expectations, which are beliefs about one's ability to perform a particular behaviour, are primary influences on behaviour and behaviour change (Bandura, 1986). Therefore it seems that clients' career beliefs need to be emphasized in career counselling or career education.

The social learning theory approach to career decision making purports that individual career interests and behaviour develop from learning experiences which produce positively and negatively reinforcing events (Mitchell, Jones, and Krumboltz, 1979). Learning experiences may be vicarious, which means that observers can learn behaviours, values and skills through observation of television, media and books (Bandura, 1977).

Mitchell et al., (1979, pp. 134-135) theory states "... educational and occupational preferences may develop from observing a valued model who is positively reinforced for engaging in an occupational activity". This theory maintains that such role models can be parents, educators or peers.

Preparing students for future roles in the world of work has become increasingly important for school counsellors and educators. As a result of changes taking place in the workplace, the challenge is to prepare students to enter and be competitive in a world class workforce (Feller, 1996). Given the level of competitiveness and the rate of change it is essential that students become prepared to enhance their chance of success.

Students will be prepared to be contributors to society and live a productive life. Thus for students to meet these challenges, career development must be a priority.

Parsons (1909) stated that we guide students through school and then drop them in the complex world of work. Yet there is a need for guidance in the transition from school to work. Today the development of a career continues to be priority and must be addressed effectively to meet the career development needs of students. According to Herr and Gramer (1996, pp. 204) "Career development proceeds smoothly, negatively or positively, whether or not career education or guidance exists".

School guidance programmes should be implemented positively to impact on career development. The goal should be to make career development a priority and such activities should facilitate career development. All students regardless of their plans after high school have career development needs that should be addressed through career guidance programmes.

Hamilton and Hamilton (1994, pp. 204) stated, "Our society provides reasonable career paths for quarter of our youth who earn Baccalaureate degrees". In contrast we offer little guidance to the remaining three quarters of young people who complete formal education without Baccalaureate degrees.

In addition, Mendel (1994) described a lack of career guidance for those students not going to college. It is imperative that career development activities be a priority for school guidance programmes in order to effectively prepare all students regardless of the educational level or career path selected.

There are a number of changes in the workplace that are relevant to school counsellors as they facilitate career development activities and counsel students making career and educational decisions. Becoming aware and staying current about the changing workplace is important as counsellors seek to help students be informed and knowledgeable about the workplace and the implications of these changes for students. According to Scans (1991) effective workers need to demonstrate skills in managing and using resources.

According to Bureau of Labour Statistics data cited by Bernstein (1997), layoffs increased 4% in the last quarter of 1996 compared to the same quarter in 1995. These challenges make it essential that every effort be made to enhance the career development of students through the guidance and educational programmes of schools. It is clear that the workplace is changing. The challenge to school counsellors is to be knowledgeable of the changes and their implications when preparing students for their future. It is also important to encourage and help students develop the kind of skills, knowledge and attitudes that will enhance their opportunities for success.

Workplace changes have implications for the work of the school counsellor with students making career decisions. Schools will need to prepare students to make the transition to the next level. Students will need to have the skills and competencies required for the option they choose.

Knowledge is a valuable commodity or resource (Drucker, 1994), for prospective workers. As a result students must take advantage for furthering their education. According to Feller (1996) the workplace has little patience with employees who don't take responsibility for their own learning. Students must be proactive and develop their skills needed to assume responsibility for their own career development.

Reich (1994) stated that the challenge is to provide effective guidance programmes that will enable students to develop their own careers. Counsellors must help students use the information of the changing workplace as they prepare for the future. As a result effective preparation and career planning are essential.

Career development activities should facilitate decision making. Given the downsizing and career transitions applying career decision making is a valuable life skill. In addition to learning how to make career decisions students must learn about various occupational options.

Students should be informed of their educational options available to them. Students need to be informed that there are different ways to success when planning one's career. Gray and Herr (1996) states there are other ways to win to a Bachelors degree. Parnell (1986) supported this and noted there is more than one way to success.



Regardless of the option students choose, helping them develop skills is valuable in career choice.

### **2.3 The influence of gender on career choice**

Various studies have shown that high school and college students have limited occupational information (Grotevant & Durrett, 1980; Yanico, 1980). A study by Loesch and Sampson (1978) showed that little relationship existed between the actual job knowledge of students and their vocational preferences. Moreover, McLure and Piel (1978) reported that the need of high school girls for occupational information concerning science and technology was one of several barriers to their entrance into non-traditional occupations.

Women are often lacking career training skills as well as occupational information. Rapoza and Blocker's (1976) study of urban 12<sup>th</sup>-grade girls found that female students were three times less likely to report an educational or vocational plan than were the male students. They called this lack of planning the "Cinderella effect". Dowling's (1981) "Cinderella complex" also emphasized that women may wait for someone or something to take care of them, rather than choosing to be responsible for themselves. Concerning this lack of educational or vocational planning, Archer (1985) found that junior and senior high school girls were more likely to explore traditional family rearing options than were boys of the same age. However, girls' interest in non-traditional options increased from grades 6 through 12. Kammer's (1985) study of rural high school population showed that young men expressed greater confidence in their ability to achieve their career goals than did young women. The majority of both sexes followed traditional sex role paths in their career choices.

Research suggests that contextual factors such as gender-related barriers within the work opportunity structure (female segregation), and traditional sex-role socialisation (within home and school settings), along with other early and ongoing learning experiences, may circumscribe female career aspirations and achievement (Betz & Fitzgerald, 1987; Farmer, 1985; Fitzgerald & Betz, 1983; Gottfredson, 1981). Research on gender differences has also confirmed the assumption that individual factors such as women's career self-efficacy and career outcome expectations may be influenced by these contextual factors, and that this, may also limit the range of career options

considered (Betz & Hackett, 1981; Lent, Brown, & Hackett, 1994; Brown & Lent, 1996).

Brown and Lent (1996) noted that females may prematurely restrict the scope of their career exploration activity, based on inaccurate self-efficacy and outcome expectations, or both. If women thus perceive substantial barriers to pursue a career goal, they may be less likely to translate their interests into choices. Thus it is possible that academic learning experiences and traditional sex-typed gender role socialisation (e.g. at home and in school settings) may have influenced the career self-efficacy perceptions of the females studied, which may explain their more negative career outcome expectations.

Recent statistics indicate that females continue to be less likely than males to pursue education and career in science and mathematics (Bae & Smith, 1996; Higher Education Research Institute, 1996; Stumpf & Stanley, 1996). Women are less likely than men to earn bachelor's degrees in mathematics, physical sciences, computer sciences, or engineering, and the gap between the numbers of men and women who earned a degree in physical sciences increased between 1982 and 1994 (Bae & Smith, 1996).

Achievement and persistence in science have been linked to students' attitudes (Hanson, 1996). Science is often seen as a masculine subject by girls (Hill, Pettus, & Hedin, 1990; Kahle & Meece, 1994; Taber, 1992) and researchers consistently find that female students have less positive attitudes toward science than male students during the middle school and high school years (American Association of University Women, 1992; Catsambis, 1995; Jones, Mullis, Raizen, Weiss, & Weston, 1992; Weinburgh, 1995).

Girls reported feeling less competent in science than boys (Kahle & Reenie, 1993), even highly talented females report less self-efficacy for maths and science tasks than their male counterparts (Ewers & Wood, 1993.; Guzzetti & Williams, 01996) and they are less likely to pursue scientific or technological careers than their equally talented male classmates (Catsambis, 1995). In a group of 1990 high school seniors who scored above the 90<sup>th</sup> percentile on the mathematics portion of the Scholastic Aptitude Test, females were only two thirds as likely as males to indicate plans for pursuing a career in science or engineering (Matyas & Dix, 1992).

In another study, highly talented seventh and eighth graders were asked to rank their liking for biology, chemistry, and physics; girls preferred biology more than boys, and boys preferred physics and chemistry more than girls (Benbow & Minor, 1986). Recent research indicates that female high school students feel less confident than male students about their abilities and likelihood of success in physical science and engineering professions, but they feel more confident in health-related professions that rely heavily on training in the biological sciences (Eccles, Barber, & Jozefowicz, 1998).

The same trends in science achievement and attitudes have not been documented specifically for females in rural communities. There is a lower science achievement aspiration among rural girls because the educational expectations of rural adolescents consistently fall below those of non-rural adolescents (Cobb, McIntire, & Pratt, 1989; Hansen & McIntire, 1989; Sarigiani, Wilson, Peterson, & Vicary, 1990; Zimbelman, 1987).

Expectations of holding professional and technical jobs are lower for rural than non-rural teens (Cobb et al., 1989; Haller & Virkler, 1993). These effects may be magnified for academically talented girls in rural communities when the topic is science. Kerr (1988) contended that, although gifted girls are rewarded for intellectual achievement at early ages, by adolescence they are rewarded for social conformity. Gifted girls in rural settings may be particularly influenced by social conformity due to traditional beliefs within their communities, such as gender-stereotyping, that may discourage their participation in math and science (Battle, Grant, & Heggoy, 1995; Howley, Pendarvis, & Howley, 1988; Southern, Spicker, & Davis, 1987).

The aspirations of bright and promising gifted females may be in conflict with expectations that females in rural environments will help maintain the stable, sometimes conservative, educational, religious, and social life of these communities (Kleinsasser, 1986). Rural adolescent women report greater participation, commitment, and values related to the home and family than rural adolescent men (Munson, 1992).

Some have suggested that the traditional gender roles commonly found in rural settings (Rice & Coates, 1995) may constrain women's employment options and raise the value of marriage (Crockett, Shanahan, & Jackson-Newsom, in press). Post, Williams, and Brubaker (1996) surveyed the career expectations of rural students and found that

although girls were more likely to plan to go to college than boys, they were also more likely to work part-time. Retrospective accounts of graduates from rural high schools support this idea by suggesting that rural settings lack diversity for non-traditional interests and that insufficient emphasis is placed on higher education and career options. Women in particular report that schools do little to expand their knowledge of non-traditional jobs (Battle et al., 1995). This may be because adolescents' vocational aspirations are shaped by the jobs they see in their communities (Ianni, 1989); thus, the homogeneity of rural communities may limit adolescents' perceptions of educational and occupational opportunities found in more diverse settings (Crockett, Shanahan & Jackson-Newsom, 1998).

Girls' lack of exposure to math and science activities outside of the classroom has been related to gender differences in science attitudes (Erickson & Erickson, 1984; Kahle & Lakes, 1983; Jones, 1991; Jovanovich, Salano-Flores, & Shavelson, 1994) and to interest in pursuing career in math, science, and engineering (Lee, 1997; Newton, 1986). Thus, interventions have attempted to increase interest by providing access to math and science extracurricular activities for females or by using performance-based teaching to compensate for disparities in girls' and boys' activities outside of school (Jenkins & MacDonald, 1989).

The intrinsic value of a task has often been linked to achievement. In the Eccles expectancy-value model of achievement choices, intrinsic value is defined as the "enjoyment the individual gets from performing the activity or the subjective interest the individual has in the subject" (Wigfield & Eccles, 1992, p.280). They suggested that when a task has high intrinsic value the individual will be motivated to continue to engage in the task. Others have made similar arguments for the role of intrinsic motivation (Deci & Ryan, 1985; Harter, 1981). Numerous studies have confirmed the relationship between intrinsic value and decisions to pursue a task (Deci & Ryan, 1985; Eccles, 1994; Wigfield & Eccles, 1992).

The same relationship between interest in science and decisions to continue taking science courses or in science careers has been reported. Both girls and boys list interest in the subject and relevance to a career as the principal reasons for choosing science classes (Kelly, 1981), but boys tend to emphasize career relevance while girls emphasize interest. Compared to boys, however, girls in middle school are less

interested in science (Schibeci & Riley, 1986), and female high school seniors are more likely than their male peers to say that they did not take mathematics and science courses because they disliked the subject matter (Bae & Smith, 1996).

Researchers have suggested that girls may not see themselves as interested in science because their experiences in science classes lead them to define science as “masculine” (Harding, 1986; Kelly, 1987), and others have documented the stereotyping of physical sciences for boys and life sciences for girls (Kahle & Meece, 1994). It seems clear that adolescents are more likely to choose career in science if the topic is of interest or intrinsically valued.

Sinclair, Crouch, and Miller (1977) found that high school girls clustered their job choices around “traditional female occupations: (e.g., teacher, nurse, clerical worker, shop assistant). To this extent their perceived possibilities were constrained by their sex role socialization. Similar findings were reported by Poole (1983) and Earley (1982).

Research has identified some of the critical ways in which parents shape their children’s educational and vocational development. Astin (1984) argued that when parents act as “value socializers” they communicate strong biases to their children about gender appropriate occupational choices and goals. In both urban and rural racially mixed samples of elementary aged children the development of academic self-concept (Entwistle, Alexander, Pallas, & Cadigan, 1987), as well as the formation of occupational goals (Birk & Blimline, 1984; Peterson, Stivers, & Peters, 1986; Vaden-Kiernan, 1992) have been intimately linked with parental influence and prevailing sex-role stereotypes.

Eccles (1994) concluded that when parents act as “expectancy socializers” they can greatly influence their children’s perceptions of competence across both academic and non-academic domains. This can result in successful performance accomplishments in those activities. Young women appeared to be most vulnerable to lowering their self-referent ability perceptions in those domains (e.g., mathematics) where parent held sex-role stereotypic beliefs viewed women as being inherently less competent than men. Longitudinal and international research (Sewell & Hauser, 1980; Marjoribanks, 1986; Gustafson & Magnusson, 1991; Silbereisen, Vondracek, & Berg, 1997; Kracke, 1997), as well as work on the pursuit of mathematics and science careers (Farmer, 1985), have

converged in highlighting the critical role perceptions of parental support and encouragement play in promoting positive academic and vocational outcomes for children. These findings are consonant with research from the social support literature (Barrera, Li, & Chassin, 1995) that underscores the vital importance of an individual's perception of receiving support.

Research on diverse samples of adolescents has shown that prior experiences, self-perceptions, and parents' perceptions are influential in their children's achievement choices (Jacobs, 1991; Jacobs & Eccles, 1992; Jacobs & Weisz, 1994).

A large body of literature has established the importance of parents' beliefs in influencing their children's achievement attitudes, academic performance, and career decisions. Parents' beliefs and expectations have been related to the child's performance history (Entwisle & Baker, 1983; Entwisle & Hayduk, 1978), performance on cognitive tasks (McGillicuddy-DeLisi, 1985), and self-perceptions of ability and achievement expectancies (Hess, Holloway, Dickson, & Price, 1984; Mau, Domnick, & Ellsworth, 1995; Stevenson & Newman, 1986). In addition, studies have shown that parents' expectancies for their children's academic success in different school subjects and their aspirations for their children's educational attainment are related to the future academic aspirations for their children (Alexander & Entwisle, 1988; Jacobs & Eccles, 1992; Parsons, Adler, & Kaczala, 1982).

Others have found that students identify parents as the strongest influence on their career and course decisions (Bender, 1994; Lunneborg, 1982; Young, 1985), particularly when choosing careers in science or engineering (Dick & Rallis, 1991). Girls also report that they change their plans to more traditional careers if they do not receive strong support from parents (Bender, 1994).

In addition to the importance of parents' specific beliefs about their own children, parents' task-specific gender-role stereotypes have been shown to influence children's self-perceptions of achievement and their performance (Jacobs, 1991; Jacobs & Eccles, 1992). These researchers suggest that parents' gender-role stereotypes and their sex-differentiated perceptions of their children's abilities play a critical role in socializing children's self-perceptions of their own competence. The available studies have considered gender stereotypes in mathematics, sports, and social domains, rather than

in science; however, research documenting gender-differentiated views about science (Hill, Pettus, & Hedin, 1990; Jones, 1991; Levin, Sabar, & Libman, 19991) suggests that parents are likely to hold gender-stereotyped beliefs about science as well.

Adolescents regardless of sex, social class or ethnic backgrounds, listed a vast array of occupational categories. That adolescents tended to list occupations related to their own father's occupational status was congruent with earlier findings (Brook, Whieman, Peisach, & Deutsch, 1974; Connell, Stroobant, Sinclair, Connell, & Rogers, 1975; Sewell, Haller, & Straus, 1957). Females listed more occupations than males, especially in certain categories. Boys regarded a higher proportion of their list as possibilities for self than did girls.

Few studies that have examined the link between peers and academic choices suggest that friends influence academic achievement motivation (Berndt, Laychak, & Park, 1990; Gustafson, Stattin, & Magnusson, 1992) and that peer membership is consistently related to educational outcomes for children and adolescents (Ide, Parkerson, Haertel, & Walberg, 1981). Barker and Leary (1995) discovered that by eighth grade most girls believed that their friends would disapprove of a girl's choice to go into a science career, although most girls liked science in general. By 11<sup>th</sup> grade, adolescent girls believed that their friends would support females' pursuing science careers; however, they also believed that females no longer liked science.

Beal (1994) suggested that negative reactions from classmates may make it difficult for students to try subjects or classes that are different from what is typically expected for their gender. This point may be even more true in rural communities, in which traditional views of women's roles are still strong.

Involvement in extracurricular activities has been related to achievement in a variety of ways. Participation in unstructured activities has been related to low achievement and problem behaviours (Brown, 1990; Fine, Mortimer, & Roberts, 1990; McLaughlin, Irby, & Langman, 1994) whilst participation in school related activities appears to be positively associated with academic success (Eccles & Barber, 1995; Marsh, 1992). Students from small schools participate in twice as many extracurricular activities as those from large schools; thus, rural adolescents are likely to be highly involved in extracurricular activities (Crockett et al., 1998). Participation in such activities is

strongly related to decision making about careers; positive experiences lead students to pursue related career, and negative experiences lead students to consider different careers (Bender, 1994). In-depth interviews with nine gifted, rural females revealed that involvement in extracurricular activities was critical to their career decision making (Battle et al., 1995). Others have found that female students with wider ranging non-traditional experiences tended to consider non-traditional career more often than those who had limited experiences (Kingdom & Sedlacek, 1981; McLure & Piel, 1987).

Girls list certain occupational status categories as suitable for self somewhat more often than do boys (and vice versa). Girls perceive technical-service and skilled occupations for themselves while boys see themselves more often than girls in semiskilled, unskilled, and unemployed occupations. Boys, however, were more likely to see themselves in higher level occupational categories (upper professional and professional) than were girls (Poole & Cooney, 1985).

Other studies indicate that girls showed more career maturity at a given age than did boys (Omvig & Thomas, 1977; Westbrook, Cutts, Madison, & Arcia, 1980).

Both sexes could be encouraged to explore their personal possibilities during their vocational decision-making phase in terms of Tyler's (1978, 1983) "multiple possibilities for self", regardless of gender. Fitzgerald and Crites (1980), in reviewing women's career development, stress the need to actively counteract the effects of society on women's career choices.

Research has indicated that women of colour and White women limited their occupational alternatives due to gender-typed expectations (Church, Teresa, Rosebrook, & Szendre, 1992). In addition, research has shown that societal factors accounted for the career choices of students of colour more than personal factors (Thomas, 1985).

Research findings also suggest that low career self-efficacy has been associated with circumscription of vocational alternatives for women (Hackett & Betz, 1981) and students of colour (Bores-Rangel, Church, Szendre, & Reeves, 1990). Hackett and Betz (1981) defined career efficacy as confidence in one's ability to perform the necessary career-related tasks to obtain a career. Career decision-making self-efficacy has been defined as confidence in performing tasks related to investigating, selecting, and implementing a career choice (Taylor & Betz, 1983). Bandura (1977) hypothesized that



self-efficacy was related to initiation of activities, persistence despite obstacles, and eventual success. Students who lack career decision-making self-efficacy may avoid exploratory activities, give up easily, and fail to reach their occupational potential.

A variety of intervention programmes have been implemented to help women broaden their career choices, especially their non-traditional career choices (Cini & Barker, 1987; Cramer, Wise, & Colburn, 1977; Johnson & Extema, 1982; Prediger & Noeth, 1979; Wilson & Daniel, 1981). Miller's (1982) study suggested that educating women about non-traditional career is best achieved by an integrated approach that includes self-concept-building exercises as well as career-exploration activities. Research has recommended providing women with longer and more in-depth career counselling programmes rather than short programmes (Cini & Barker, 1987; Cooper, 1975; Lawler, 1977).

Both knowledge of occupations and confidence in one's ability to develop career goals are often stated as positive factors in women's career planning (Dowling, 1981; Kammer, 1985; McLure & Piel, 1978; Rapoza & Blocker, 1976). In a study that compared occupational plans of adolescent women to men, Gerstein, Lichtman and Barokas (1988) cautioned that various factors such as societal expectations and demands of the labour market often make male-dominated occupations difficult for women to obtain. Making realistic choices is another important factor in achieving career and job success.

The researcher agrees with Gerstein, Lichtman and Barokas (1988) that counsellors need to provide occupational and current labour market information as well as psychological support to enable girls to achieve realistic career directions. Counsellors can also recommend career exploration programmes to adolescent girls. Cini and Barker (1987) suggested, from their study of the awareness of non-traditional occupations by rural girls that these adolescents may benefit from a number of career exploration experiences.

## 2.4 Summary

This research has begun to explore the role of guidance in schools. It also takes into account the importance career education has on career choices. It is therefore imperative that counsellor educators begin to consider and implement fundamental changes in career development for students. Catlett (1992) highlights the importance of helping children to consider the dignity and importance of all forms of work. Herr, Rayman and Gans (1993) list important elements of career development as development of decision making skills, competence and ability to connect schoolwork and future work.

Previous literature in the field of career education reveals that career education in schools influences career choices. Lapan and colleagues (1997) reported that career education prepared learners for the future when mere career education was available to learners. The researcher therefore agrees with Lapan and colleagues (1997) that career education will influence the career choices of learners.

Previous studies have revealed that women are lacking career training skills as well as career information. This will lead to a limited range of career options and will restrict their scope of career exploration activities. The researcher assumes that gender would have an influence on career choices.

Therefore it is imperative that counsellor educators consider and implement fundamental changes in career development for students. Such programmes should effectively prepare all students towards a career path.

The following chapter will focus on the research design and methodology of the study. It gives attention to the sample group and Career Mentor.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter details the research design and methodology of the study. The design and method of investigation are discussed in detail. Described in this chapter are among other things, the Career Mentor, the Career Preference Inventory, how data was collected, the selection of subjects and a plan of organization, and analysis of data. This chapter also includes the research design i.e. the approaches to data collection, the research instrument, the research population and sample, and data analysis.

#### **3.2 Research Design**

The design of study is experimental. Field experiments are conducted under natural conditions. Such experiments are also conducted in real life/ field settings where a researcher has less control over the experimental conditions.

This field study took place in a natural setting which is the classroom. A dramatic example is a field experiment by Harari, Oren and Roberts (1985) on whether a male passer-by will attempt to stop an attempted rape in a natural setting. In this experiment, conducted at San Diego State University, an attempted rape was staged, on a generally isolated campus path, in the evening. The staged act was clearly visible to unsuspecting male subjects who approached alone or in groups of two or three. In the attack, a female student was grabbed by a large man hiding in the bushes. As the man pulled her away and tried to cover her mouth, the woman dropped her books. She struggled and screamed, "No, no! Help, help, please help me!" and "Rape!" hidden observers told the actors when to begin to stage the attack and noted the actions of the subjects. Assistance was measured as movement toward the attack site or movement toward a police officer visible across a nearby parking lot.

In the experiment involving the staged rape, the experimenters recreated a realistic situation with high external validity. The subjects were not randomly assigned. Any

man who happened to walk by became a subject. The experimenters could not precisely control what the subject heard or saw. The measurement of subject response was based on hidden observers who may have missed some subject responses. Field experiments tend to have greater external validity but lower internal validity, that is, they are more generalizable but less controlled.

An experimental study is a cause and effect study. It involves manipulation of certain variables. Some treatment programmes are used for the manipulation, and the expected effect then measured.

In this study a pre-test was conducted to determine the level of career awareness of the subjects. Once this process was completed, the experiment was then conducted.

### **3.3 Sampling Design**

The sample of this study consisted of grade 10 learners from Richards Bay Secondary and Aquadene Secondary public schools.

The respondents are full time students of the school. These students are mainly English and Zulu speaking and reside in Richards Bay, Esikhawini and Empangeni. The majority of the students come from urban townships. The sample comprises of one hundred and seventy students from grade 10 i.e. 100 grade 10 students from Richards Bay Secondary school, and 70 grade 10 students from Aquadene Secondary school. The students' ages range from 15 years to 19 years, with the average age being 17 years.

Data on biographical variables with respect to the testees includes: age and gender.

Simple random sampling method was used whereby 170 subjects were selected from the population of Richards Bay Secondary and Aquadene Secondary schools, to ensure that all members had the same probability of being selected for the study. The total sample is approximately 170. The procedure was to use a table of random numbers to select participants (Blanche & Durrheim, 2002). Each learner was assigned a number from the total number of learners belonging to grade 10, thus ensuring that 170 learners were drawn from the sample.

The total size of the population of grade 10 learners from both schools was 320 learners. The percentage of 170 learners in this population was 53 %. A total of 170 learners were used in this study. This was due to the availability of learners from both schools, on the day of administering the questionnaire.

In simple random sampling, not only does each element of the sample have a known probability of being selected but they each have the same probability of selection. This saves time and money, and provides valid results for the population. This is referred to as probability sampling in which subjects are drawn from a larger population in such a way that the probability of selecting each member of the population is known.

### **3.4 Method of data collection/instrument**

The Career Mentor is a computerized career decision support system developed by the Human Sciences Research Council (HSRC, 1988). The Career Preference Inventory of the Career Mentor was used to meet the research aims of this study. This programme assisted in the understanding of one's career preferences and identified whether school subjects were chosen according to career choices. This computerized programme also provides information on occupations that link up with career preferences allowing one to make well-informed career choices.

Due to the lack of computers for the sample of 170 learners, the questions from the Career Mentor were printed and duplicated in the form of a written questionnaire. The questionnaire was used to gather data from respondents. These questionnaires consist of closed ended questions and also contain biographical variables of the testee: age and gender. At this stage, analysis is left flexible to permit quantitative and qualitative analysis of the data. It is envisaged that these forms of analysis will yield information for testing the hypotheses.

The instrument Career Preference Inventory consists of 126 items. The items consist of yes or no responses. The testee will indicate his or her response for all 126 items. After completion, the responses were grouped according to career fields. The career fields are as follows: General, Commerce, Sciences, Skills, and Social. These career fields were cross tabulated with gender.

Further tabulations were drawn which included the subjects that the testee was currently studying. These were also grouped according to different subject fields i.e. Arts, Commerce and Sciences.

Finally, results from the tabulation of career fields obtained from the 126 items were compared with the tabulation derived from the grouping of the subjects the testee was currently studying.

The above-mentioned procedure addresses aims one and two of this study. No pilot study was conducted as the instrument was validated by the Human Sciences Research Council. The instrument was administered to 4276 grade 9 and grade 11 learners in the Western Cape, Eastern Cape and Gauteng. The instrument was conducted on English second language speakers, English first language speakers, and Afrikaans first language speakers.

### **3.5 Reliability of the CPI**

The assumption here is that the Kwa-Zulu Natal grade 10 subjects of this study share similar characteristics with the grade 11 subjects of Western and Eastern Cape on who this instrument was validated.

Refer to Annexure B and C regarding the reliability of the instrument, Career Mentor.

### **3.6 Method of data analysis**

The Chi-square statistical technique was used to analyse data collected from the sample.

### **3.7 Procedure followed during administration of the CPI**

The Career Preference Inventory was applied to two groups of students. The tester was introduced to the learners. The tester informed the test takers about their rights, the use of the Career Mentor and the CPI, and the purpose for which the assessment information was to be used.

The tester obtained consent from the test takers on the use of the instrument and its results. The tester also communicated to all learners that confidentiality would be maintained at all times. Questions from the testees were addressed prior to the use of the assessment measure. Tester informed testees to follow instructions carefully and to represent themselves honestly. The respondents were asked to fill in all the required data and to take their time as there is no time limit.

Questionnaires were then distributed to testees under controlled conditions. After completion of the assessment by all learners, one hundred completed questionnaires were collected, collated, and checked to ascertain that no data was missing. On the following day the same procedure was followed with the second school. Seventy completed questionnaires were collected. Thus a total of 170 completed forms were obtained.

### **3.8 Summary**

The next chapter contains the analysis and interpretations of data. The hypotheses that were formulated were tested in the forthcoming chapter.

## **CHAPTER FOUR**

### **PRESENTATION AND ANALYSIS OF DATA**

#### **4.1 Introduction**

One aspect of career education is learning about oneself (Hughey & Hughey, 1999). Opportunities providing learners to learn about their skills, interests and values will be beneficial to them. In addition, this provides learners with the opportunity to assume responsibility for their career choices.

The Career Preference Inventory (CPI) is a self help questionnaire aimed at adolescents who are in the exploration phase of career fields. The CPI contained 126 items on the preferred work activities. These activities were grouped according to 5 different career fields namely General, Commerce, Sciences, Skills and Social. In addition the learners' school subjects were grouped into 3 fields of study namely Arts (i.e. general subjects), Commerce and Sciences. The scoring procedure of the CPI was done manually. This allowed for the learners' responses to be grouped according to the five above-mentioned career fields.

The research design is quantitative. The design did accommodate for a qualitative approach. This chapter presents, analyzes and interprets data. The hypotheses formulated in the previous chapter are tested. Discussion of the results will follow.

#### **4.2 Study Sample**

The sample subjects for this study were drawn from two public schools in the Empangeni District namely Richards Bay Secondary and Aquadene Secondary.



**Table 4.1 Distribution of subjects in the sample [N=170]**

		Frequency	Percent	Valid Percent
Valid	1 Male	65	7.0	40.6
	2 Female	95	10.3	59.4
	Total	160	17.3	100.0
Missing	System	765	82.7	
Total		925	100.0	

The questionnaire was administered to 170 learners. However 10 learners were excluded from the analysis of the total sample (n=170) since they did not indicate their subject fields. Thus a sample of 160 learners was used to test the hypotheses of the study. Table 4.1 shows the composition of the study sample i.e. gender distribution of the study sample. The table indicates that 40,6% of the respondents comprise of males and the remaining 59,4% are females.

**Table 4.2 Frequency distribution of school subjects**

		Frequency	Percent	Valid Percent
Valid	1 Sciences	60	6.5	37.5
	2 Commercial	19	2.1	11.9
	3 Arts	81	8.8	50.6
Total		160	17.3	100.0

Table 4.2 shows the frequency distribution of school subjects. Learners were asked to list all their school subjects. Of the 160 learners in the sample, the table reveals that 37.5% are pursuing science subjects, 11.9 % commerce and 50.6% pursuing general or arts subjects. The majority of the learners selected subjects from the general study field.

**Table 4.3 Relationship between fields of study and career choice**

		FIELDS OF STUDY		
		Arts	Commerce	Sciences
<b>CAREER FIELDS</b>				
General	F	62	36	87
	%	33.5	19.5	47.0
Commerce	F	193	72	163
	%	45.1	16.8	38.1
Sciences	F	134	29	103
	%	50.4	10.9	38.7
Skills	F	75	32	72
	%	41.9	17.9	40.2
Social	F	69	0	35
	%	66.3	0	33.7
Total	F	533	169	460
	%	45.9	14.5	39.6

Chi-square = 44.85      df = 8      p < .05

Table 4.3 shows the relationship between subject fields and career choices. Statistical analysis yields a chi-square of 44.85 and df = 8. This is significant at .05 level of significance. The two variables namely subject fields and career choices differ significantly ( $p < .05$ ).

The hypothesis that there will be no significant differences among learners in their career choices is tenable. There is a significant relationship between subject fields and career choices. The observed frequency is not due to chance but is statistically significant.

**Table 4.4 Relationship between gender and career choices**

		CAREER FIELDS									
		General		Commerce		Sciences		Skills		Social	
		F	%	F	%	F	%	F	%	F	%
GENDER	Male	83	15.1	182	33.2	115	21.0	69	12.6	99	18.1
	Female	130	16.9	261	33.9	143	18.6	77	10.0	158	20.5
	Total	213	16.2	443	33.6	258	19.6	146	11.1	257	19.5

Chi-square = 4.52                      df = 4                      p > .05

Table 4.4 shows the frequency distribution of gender on career choices. The table shows a chi-square value of 4.52 at df = 4 and alpha > .05 is not significant. Learners grouped according to gender do not differ significantly regarding their career choices. The hypothesis that gender will have no influence on career choice has been confirmed.

The career fields most chosen by the learners were commerce at 33.6% of the time and sciences at 19.6% of the time.

**Table 4.5 The relationship between gender and fields of study**

		FIELDS OF STUDY					
		Arts		Commerce		Sciences	
		F	%	F	%	F	%
GENDER	Male	21	32.3	7	10.8	37	56.9
	Female	60	63.2	12	12.6	23	24.2
	Total	81	50.6	19	11.9	60	37.5

Chi-square = 18.38                      df = 2                      p < .05

Table 4.5 shows a chi-square of 18.38 at df = 2 and p < .05 is significant. The learners who were grouped according to gender differ significantly among themselves in relation to their choice of subject fields. The frequency distribution shows that a

relationship exists between gender and learners choice of school subjects. Majority of female learners 63.2% pursue subjects from the Arts whilst most male learners 56.9% pursue subjects from the sciences at school level.

The high rate of male learners pursuing science subjects 56.9%, compared to female learners 24.2% is consistent with recent research that says that females are less likely than males to pursue education in science and mathematics (Bae & Smith, 1996). According to the American Association of University Women (1992) science is often seen as a masculine subject by girls and researchers consistently find that female subjects have less positive attitude toward science than their male counterparts in middle and high school years.

### **4.3 Qualitative analysis of the questionnaire**

The questionnaire administered to the sample study was analysed according to the five career fields. Each field constituted 21 questions of the questionnaire with one field constituting 42 questions of the questionnaire namely the general career field.

#### **4.3.1 General**

This field dealt with careers involving languages, design, entertainment and general administrative work. Questions 1 - 7 dealt with performing activities where language was the main component. Questions 8 - 14 dealt with using creative arts to design things and express oneself. Questions 15 - 21 dealt with performing activities of an artistic nature to entertain people. Questions 22 - 28 dealt with activities of a secretarial nature. Questions 29 - 35 dealt with working with figures and bookkeeping. Questions 36 - 42 dealt with activities involving operation of office machinery. Learner responses show that female respondents are more interested in an artistic career than male respondents.

#### **4.3.2 Commerce**

Questions 22 – 28 dealt with performing activities of a business nature. Questions 29 – 35 dealt with performing activities of a managerial and persuasive nature, supervise people and undertake strategic planning. Questions 36 – 42 dealt with performing activities to advertise and promote

services and sales. Majority of the respondents selected a career in the field of commerce. Subjects like functional mathematics and business economics from the arts field and accountancy from the science field selected at school level offer learners the opportunity for a career in commerce.

#### **4.3.3 Sciences**

Questions 64 – 70 dealt with using ones knowledge of natural sciences to do tasks of a scientific nature involving biology, chemistry, geology, physics or mathematics. Questions 71 - 77 dealt with using ones knowledge of medical sciences and technology to perform activities related to medical matters.

Questions 78 - 84 dealt with using ones knowledge of social, legal and economic sciences. The science career field was the second most popular career choice of the learners, with male learners showing a greater interest in a science career than female learners.

#### **4.3.4 Skills**

Questions 85 - 91 dealt with using ones hands to make or prepare things.

Questions 92 - 98 dealt with using ones hands to grow or breed and care for plants and animals. Questions 99 - 105 dealt with using ones hands to do tasks of a technical or engineering nature (e.g. repair and install things). It is only a minority of respondents who chose a career in the skills field.

#### **4.3.5 Social**

Questions 106 - 112 dealt with performing activities of a social nature to teach, train or help people. Questions 113 - 119 dealt with performing activities of a social nature to nurse and care for people. Questions 120 - 126 dealt with performing activities to protect people and their property.

## **4.4 Discussion of findings**

This study is aimed at finding answers to the following questions.

### **4.4.1 Is there any significant difference amongst learners in their career choice?**

The present study reveals that there is a significant relationship between fields of study and career choice. These findings support the hypothesis that there are no differences amongst learners in their career choice. In a sample of 160 learners, majority of the respondents chose a career in accordance with their field of study at school level i.e. school subjects.

The study reveals that for learners who chose a career in skills, majority of these respondents 41.9% selected subjects in favour of the arts category at school. In addition 66.3% of learners, who chose a career in the social field, also selected subjects in favour of the arts category at school. Since languages are compulsory subjects undertaken at school level, this could explain the high percentage of learners who have undertaken subjects in science and commerce field at school whilst indicating an interest in a career in the general field. This indicates that learners are making career choices in accordance with school subjects.

Literature reviewed confirms the aim that career education influences career choice. The use of interest inventories and career assessments as resources form part of career education programmes that provide learners with an excellent opportunity to learn about themselves and become knowledgeable about information that will help them make career decisions (Hughey & Hughey, 1999).

In the present study, further investigation reveals that subjects like functional mathematics and business economics from the arts field; and accountancy from the science field selected at school level also offer learners the opportunity for a career in commerce. In addition subjects such as biology and functional mathematics from the arts field of study at school level also give learners an opportunity to pursue a career in sciences. These findings are consistent, thus reiterating the significant relationship between career education and career choice. Career education in the form of guidance

to learners in choosing appropriate subjects, based on value, interest and ability, in grade 10 will assist them in choosing realistic and related careers.

School counsellors need to enter into collaboration with teachers, advisors and parents to ensure the link between school and work. Findings in this study reveal that 11.1% of both males and females collectively chose careers in the field of skills (see table 4.4), whilst the demand for skilled and semi-skilled labour in South Africa is on the increase. Thus it is imperative that school counsellors expose learners to the current trend in the world of work. According to Korman (1992) the career counsellor must provide opportunities for helping clients to understand their interests, abilities and values. Korman further recommends that career counsellors assist their clients in networking with “significant others” who impinge on their lives.

Studies by Euvard (1992); Mtolo (1996); Ntshangase (1995) and Skuy et al., (1985) reveal that many pupils wanted guidance in making a career choice. This has also been underlined by a survey in 1994 at the University of Western Cape of first year university students’, majority of whom reported feeling dissatisfied with career guidance received at school level and that they experienced problems with making career choices.

Lester (1992) proposed that career education needs be viewed less as a programme and more as a way of thinking and behaving. The implication is clear that career education should begin in primary school and continue into high school and beyond. To enhance the career development of all learners in South Africa, Law (1996) proposed a four frame approach within a broader school curriculum.

#### **4.4.2 Is there any significant relationship between gender and career choice?**

The study shows that there is no relationship between the learners’ gender and their career choices. In this study findings reveal that there is very little difference between male and female learners’ choice of career, with 33.2% males and 33.9% females choosing a career in commerce. These findings are also similar for choices made in the other career fields. Findings of this study confirm previous studies. According to Dowling (1981) and Kammer (1985) there could be a possibility that females are

pursuing non-traditional careers. It was noted that knowledge of occupations and confidence in one's ability to develop career goals are often positive factors in females' career planning.

In addition it could be that males and females are more motivated to pursue a career or subject when it has high intrinsic value or interest (Deci & Ryan, 1985; Wigfield & Eccles, 1992). Another possibility is that males and females could be influenced by role models who shape their career choices. According to Mitchell, Jones and Krumboltz (1979) educational and occupational preferences may develop from observing a valued model who is positively reinforced for engaging in an occupational activity.

However the findings also reveal that there is a significant difference between gender and choice of school subjects. One explanation for this finding is that subject choices are streamlined by schools limiting the learners' alternatives to subject choice. The study also reveals that 56.9% of males chose science related subjects compared to 24.1% of females. The present study supports findings by previous researchers. American Association of University Women (1992) concluded that science is often seen as a masculine subject by girls and that females have a less positive attitude towards science than male students. Girls reported feeling less competent in science than boys.

#### **4.5 Conclusion**

The hypothesis that there will be no significant differences amongst learners in their career choice is confirmed by the findings of the present study. Findings were that majority of the respondents selected careers that were in accordance with their school subjects. In addition, the hypothesis that gender will have no influence on career choice is tenable by the findings of the present study. The results show that majority of both male and female respondents chose a career in commerce whilst minority of both sexes chose a career in the skills field.



## **CHAPTER FIVE**

### **SUMMARY, RECOMMENDATIONS AND LIMITATIONS**

#### **5.1.1 Summary**

This study was designed to investigate the influence of career education on career choices.

#### **5.1.2 Thus the aims of the study were:**

- i) To determine whether career education influences career choice.  
This aim has not been achieved. However, what has been achieved is the determination of the relationship between school subjects and career choices.
- ii) To ascertain whether gender influences career choice.

#### **5.1.3 The following hypotheses were formulated:**

- a) There will be no differences among learners in their career choices.
- b) Gender will have no influence on career choice.

#### **5.1.4 Methodology**

Chapter one consists of motivation of the study to be undertaken, statement of the problem, aims of the study, hypotheses and organization of the study as a whole. Chapter two reviews the previous studies on this study. Chapter three gives details on the method of study used in this research study. The research instrument was validated by experts. Chapter four consists of analyses and discussion of data. Chapter five consists of summary, findings and recommendations.

### 5.1.5 Findings

The study reveals that a relationship between learners' school subjects and their consequent career choices do exist. This was clearly reflected in the responses made to the questionnaire which assessed learners' interests in various career fields. Most learners made strong links between the subjects they had chosen and the careers they saw themselves having in the future. However, these choices may be made because learners like particular subjects.

According to Wikeley and Stables, (1999) there is an apparent failure in one aspect of career education, that is, the emphasis is not so much with making students aware of what they want to aspire to be, but with ensuring they know what has to be achieved in order to meet those aspirations.

In South Africa there is currently a demand for skilled and semi-skilled labour. However, on the basis of the present findings in this study many learners chose an academic career with only 11.1% choosing a career in skills. School career counsellors might consider exposing learners to the current job opportunities available in the country. One possible explanation for these findings is that learners have unrealistic career aspirations. Career education programmes can assist learners in making realistic career choices based on their individual skills and abilities.

The study also reveals that the variable gender has no influence on career choice. Males and females choice of careers varied across different fields. The findings indicate that many learners both male and female chose a career in commerce with a minority in both genders choosing a career in skills.

An explanation for this finding is that females are making non-traditional career choices. Eccles (1994) findings suggest that rural female adolescents' value of occupations were equivalent to or greater than their male counterparts. According to Rea-Poteat and Martin (1991) career educational programmes aimed at encouraging non-traditional career choices for adolescent girls seem to have a positive and rewarding experience for these girls. They reported an increase in knowledge about occupations as well as confidence in selecting occupations.

## 5.2 Recommendations

- a) The findings based on the limited sample is suggestive and serve as an indication for further research to replicate the results found in this study with a more representative sample.
- b) Future research may focus on the influence of parents, caregivers, peers and the media on learners' career decision-making. As Fouad and Bingham (1995) discussed, *successful career intervention must incorporate familial and societal variables and attend to the cultural context of the participants*. In particular, there is a need for greater understanding of how parental beliefs about careers shape their children's choices of careers.
- c) There is a great need for future research to examine how environmental variables (e.g. previous work experience, socio-economic levels, and age factors) influence career decision making. This could also improve learners' career choices and allow learners to make realistic career choices.
- d) In addition, there is a great need for universities and teacher colleges to offer specific training of teachers in career counselling and career guidance. There is however, a need to investigate how guidance counsellors in the area of career education influence learners' career choices. Inclusion of such groups can lead to learners making realistic career choices.
- e) Future research may include learners from rural areas, as studies reveal that learners from rural areas are more prone to choose stereotypical careers. Thus there is a need for career education programmes in rural areas so that these stereotypical gender roles can be dismissed and realistic career choices can be made.
- f) In addition, future research should evaluate the understanding of the role that career maturity and attributional style play in the career decision-making process of high school learners in post-apartheid South Africa.
- g) Future research can also focus on effective guidance programmes in schools that are geared towards learners making realistic career choices.

### **5.3 Limitations of the study**

There is no doubt that this study achieved its objectives. It is however true that there were several limitations.

- a) The study sample was limited to 160 grade 10 learners enrolled in two urban schools in the Empangeni district. The study also focused only on urban school with no inclusion of schools from rural areas. These serve as a limitation of the study and its generalizability. Further research with a more representative sample is needed before results can be generalized.
- b) The structure of the instrument (questionnaire) was such that respondents were required to make a cross for the correct alternative for each question. In all, these numbered to 126 questions. There were no open ended questions. Thus for open minded learners this task was quite unchallenging.
- c) The questionnaire was administered in the afternoon. This could have affected the respondents who had to hasten for public transport as many learners reside in outlying areas of the school. This could affect the results of those respondents who were hasty in completing the questionnaire.
- d) The study did not involve parents, caregivers, peers or guidance counsellors in the process and did not take into account how they influenced learners' career choices.
- e) The findings of the study did not reveal whether career choices were reflective of the learners' abilities.

### **5.4 Conclusion**

This research study has begun to explore the needs of career education amongst South African high school learners. Hopefully it will contribute to the formation of new school guidance programmes that are more relevant to the daily and future lives of school going learners.

## REFERENCES

- Ahia, C.E., & Bradley, R.W. (1984). Assessment of secondary school students' needs in Kurara State, Nigeria. *International Journal for the Advancement of Counseling*, 7, 149-157.
- Alexander, K., & Entwisle, D. (1988). Achievement in the first two years of school: Patterns and processes. *Monographs of the Society for Research in Child Development*, 53, (2, Serial No. 218).
- American Association of University Women. (1992). *How schools shortchange girls*. Washington, DC: AAUW Educational Foundation.
- Archer, S.L. (1985). Career and/or family: The identity process for adolescent girls. *Youth and Society*, 16, 289-314.
- Astin, H.S. (1984). The meaning of work in women's lives: A sociopsychological model of career choice and work behaviour. *The Counseling Psychologist*, 12, 117-126.
- Avent, C. (1988). *Career across curriculum*. London: Macmillan.
- Bae, Y., & Smith, T.M. (1996). *Issues in focus: Women in mathematics and science*. Washington, DC: National Center for Education Statistics.
- Baker, D., & Leary, R. (1995). Letting girls speak out about science. *Journal of Research in Science Teaching*, 32, 3-27.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Engelwood Cliffs, N.J.: Prentice Hall.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behaviour change. *Psychological Review*, 84, 191-215.
- Bandura, A. (1977). *Social learning theory*. Engelwood Cliffs, N.J. Prentice Hall.

- Barrera, M., Li, S.A., & Chassin, L. (1995). Effects of parental alcoholism and life stress on Hispanic and non-Hispanic Caucasian adolescents: A prospective study. *American Journal of Community Psychology*, 23, 479-507.
- Battle, D.A., Grant, D.F., & Heggoy, S.J. (1995). Decision making of rural gifted females: Case studies of precollege influences. *Roeper Review*, 18, 33-38.
- Beal, C.R. (1994). *Boys and girls: The development of gender roles*. New York: McGraw-Hill.
- Benbow, C.P., & Minor, L.L. (1986). Mathematically talented males and females and achievement in the high school sciences. *American Educational Research Journal*, 23, 425-436.
- Bender, S. (1994). *Female student career aspirations in science* (SSTA Research Centre Report No. 94-04, SSTA Research in Brief). Regina, Saskatchewan: Saskatchewan School Trustees Association.
- Berndt, T.J., Laychak, A.E., & Park, K. (1990). Friends' influence on adolescents' academic achievement motivation: An experimental study. *Journal of Educational Psychology*, 82, 664-670.
- Berstein, A. (1997). *Commentary: Who says job anxiety is easing?* Business week.
- Betz, N.E., & Fitzgerald, L.F. (1987). *The Career Psychology of Women*. San Diego, CA: Academic Press.
- Betz, N.E., & Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology*, 28, 394-440.
- Birk, J.M., & Blimline, C.A. (1984). Parents as career development facilitators. *The School Counselor*, 31, 310-317.
- Blanche, M.T., & Durrheim, K. (2002). *Research in Practice: Applied Methods for Social Sciences*. Cape Town, South Africa.

- Bloch, D.P. (1996). Career development and workforce preparation: Educational policy versus school practice. *The Career Development Quarterly*, 20-40.
- Blustein, D.L. (1992). Applying current theory and research in career exploration to practice. *Career Development Quarterly*, 41, 174-184.
- Borders, L.D., & Archadel, K.A. (1987). Self-beliefs and career counseling. *Journal of Career Development*, 14, 69-79.
- Bores-Rangel, E., Church, A.T., Szendre, D., & Reeves, C. (1990). Self-efficacy in relation to occupational consideration and academic performance in high school equivalency students. *Journal of Counseling Psychology*, 37, 407-418.
- Bowman, R.P. (1987). Small group guidance & counselling in schools. A national survey of school counsellors, *School Counsellor*, 34, 256-262.
- Bowman, S. (1993). Career intervention strategies for ethnic minorities. *The Career Development Quarterly*, 43, 14-25.
- Boys, C. (1984, September). 'Great expectations . . .' Times Higher. *Education Supplement*, p 12.
- Brook, J.S., Whieman, M., Peisach, E., & Deutsch, M. (1974). Aspiration levels of and for children: Age, sex, race and socioeconomic correlates. *Journal of Genetic Psychology*, 124, 3-16.
- Brown, B. (1990). Peer groups and peer cultures. In S. Feldman & G. Elliot (Eds.), *At the threshold: The developing adolescent* (pp. 171-196). Cambridge, MA: Harvard University Press.
- Brown, S.D., & Lent, R.W. (1996). Applying social cognitive theory to career counselling: an introduction. *Career Development Quarterly*, 44, 354-366.

- Carr, T., & Schmidt, J.J. (1994). Who's afraid of the . . . ? : Survey of eight grades concerns. *The School Counsellor*, 42, 66-72.
- Carter, D., & Wilson, R. (1992). *Minorities in higher education: Tenth annual status report*. Washington, DC. American Council of Education.
- Catlett, J.L. (1992). The dignity of work: School children look at employment. *Elementary School Guidance and Counseling*, 27(2), 150-154.
- Catsambis, S. (1995). Gender, race, ethnicity, and science education in the middle grades. *Journal of Research in Science Teaching*, 32, 243-257.
- Chartrand, J. (1994). Testing a level versus an interactional view of career indecision. *Journal of Career Assessment*, 2, 55-69.
- Cheatam, H. (1990). Africentricity and Career development of African Americans. *The Career Development Quarterly*, 334-346.
- Cherry, N., & Gear, R. (1987). Young peoples' perception of their vocational guidance needs : Priorities and pre-occupations. *British Journal of Guidance and Counseling*, 15, 59-71.
- Chi, H.Y. (1994). *A study of the types of career decision making and career decision beliefs among college students*. Unpublished masters thesis, National Tawian, Normal University.
- Chuenyane, Z.M. (1983). Career guidance needs assessment of black secondary school students in Transvaal Province of R.S.A. *International Journal for the Advancement of Counseling*, 6, 271-280.
- Church, A.T., Teresa, J.S., Rosebrook, R., & Szendre, D. (1992). Self-efficacy for careers and occupational consideration in minority high school equivalency students. *Journal of Counseling Psychology*, 39, 498-508.



Cini, A.C., & Baker, S.B. (1987). Enhancing rural female adolescents' awareness of non-traditional careers. *Career Development Quarterly*, 35, 316-325.

Cobb, R.A., McIntire, W.G., & Pratt, P.A. (1989). Vocational and educational aspirations of high school students: A problem for rural America. *Research in Rural Education*, 6, 11-16.

Cochran, L. (1994). What is a career problem? *The Career Development Quarterly*, 204-215.

Cohen, C.R., Chartrand, J., & Jowdy, D.P. (1995). Relationships between career indecision subtypes and ego identity development. *Journal of Counseling Psychology*, 42, 440-447.

Collison, B.B. (1982). Needs assessment for guidance programme planning: a procedure. *School Counsellor*, 30, 115-121.

Connell, W.F., Stroobant, R.E., Sinclair, K.E., Connell, R.W., & Rogers, K.W. (1975). *12 to 20: Studies of City Youth*. Sydney: Hicks Smith.

Cooper, J.F. (1975). *Impact of the Strong Campbell Interest Inventory and the Vocational Card Sort on career salience and vocational exploration behaviour of women*. Unpublished doctoral dissertation, University of Maryland. Ann Arbor, MI: University Microfilms.

Cramer, S.H., Wise, P.S., & Colburn, E.D. (1977). An evaluation of a treatment to expand the career perceptions of junior high school girls. *School Counselor*, 25, 124-129.

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

Crites, J.O. (1969). *Vocational Psychology*. New York: McGraw-Hill.

Crockett, L.J., Shanahan, M.J., & Jackson-Newsom, J. (1998). Growing up in rural America: Risks and opportunities for adolescent development. In R. Montemayor, G.R.

Adams, & T.P. Gullotta (Eds.), *Advances in adolescent development: Culture and economic diversity in adolescent development* (Vol. 9). Thousand Oaks, CA: Sage.

Davis, R.C., & Home, A.M. (1986). The effect of small group counselling and a career course on career decidedness and maturity. *Vocational Guidance Quarterly*, 34, 255-262.

De Jong, T., Ganie, L., Naidoo, T., & Prinsloo, E. (1994). Towards a model for School guidance and counselling in S.A. In T.A. de Jong, L. Ganie; S. Lazarus, L. Naude, T. Naidoo, & E. Prinsloo (Eds.). *Education Support Services in S.A. : Policy Proposals*, 79-95. Belville: Education Policy Unit, UCT.

Deci, E.L., & Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum Press.

Dick, T., & Rallis, S. (1991). Factors and influences on high school students' career choices. *Journal for Research in Mathematics Education*, 22, 281-292.

Dillard, J. (1980). Some unique career behaviour characteristics of Blacks: Career theories, counselling practice and research. *Journal of Counselling*, 17, 288-298.

Dillard, J., & Campbell, N. (1982). Career values and aspirations of adult female and male: Puerto Ricans, Blacks and Anglo's. *Journal of Employment Counseling*, 167-170.

Dovey, K.A. (1980). Politics and Guidance: An overview of South African school guidance services. *British Journal of Guidance and Counseling*, 1-10.

Dowling, C. (1981). *The Cinderella complex*. New York: Summit Books.

Drucker, P.E. (1994). Age of social transformation. *The Atlantic Monthly*, 274, 53-80.

Earley, P.D. (1982). Girls, school and work: Technological change and female entry into non-traditional work areas. *Australian Journal of Education*, 25(3), 269-287.

Eccles, J. (1994). Understanding women's educational and occupational choices. *Psychology of Women Quarterly*, 18, 585-609.

Eccles, J.S., & Barber, B. (1995). *Adolescents' activity involvement: Predictors and longitudinal consequences*. Paper presented at the meeting of the Society for Research in Child Development, Indianapolis, IN.

Eccles, J.S., Barber, B., & Jozefowicz, D. (1998). Linking gender to educational, occupational, and recreational choices: Applying the Eccles et al. model of achievement-related choices. In W.B. Swann, Jr., J.H. Langlois, & L.A. Gibert (Eds.), *Sexism and stereotypes in modern society: The gender science of Janet Spence* (pp. 153-192). Washington, DC: APA Press.

Ellis, A.B., & Tiedeman, D.V. (1970). Can a machine counsel? In W.H. Holtzman (Ed.), *Computer-assisted instruction, testing and guidance*. New York: Harper & Row.

Entwistle, D.R., Alexander, K.L., Pallas, A.M., & Cadigan, D. (1987). The emergent academic self-images of first graders: Its response to social structure. *Child Development*, 58, 1190-1206.

Entwistle, D.R., & Baker, D.P. (1983). Gender and young children's expectations for performance in arithmetic. *Developmental Psychology*, 19, 200-209.

Entwistle, D.R., & Hayduk, L. (1978). *Too great expectations: The academic outlook of young children*. Baltimore, MD: Johns Hopkins University Press.

Erickson, G.L., & Erickson, L.J. (1984). Females and science achievement: Evidence, explanations, and implications. *Science Education*, 68, 63-89.

Euvrard, G.J. (1992). School guidance – what do the pupils want? *South African Journal of Psychology*, 22, 215-219.

Ewers, C.A., & Wood, N.L. (1993). Sex and ability differences in children's math self-efficacy and prediction accuracy. *Learning and Individual Differences*, 5, 259-267.

- Farmer, H.S. (1985). Model of career and achievement motivation for women and men. *Journal of Counseling Psychology*, 32, 363-390.
- Feller, R. (1996). The changing workplace: Why it challenges schools. *Vocational Education Journal*.
- Fine, G.A., Mortimer, J.T., & Roberts, D.F. (1990). Leisure, work, and the mass media. In S.S. Feldman & G.R. Elliot (Eds.), *At the threshold: The developing adolescent* (pp. 225-252). Cambridge, MA: Harvard University Press.
- Fitzgerald, L.F., & Betz, N.E. (1983). Issues in the vocational psychology of women. In W.B. Walsh & S.H. Osipow (Eds.), *Handbook of Vocational Psychology*, Hillsdale, NJ: Erlbaum.
- Fitzgerald, L.F., & Crites, J.O. (1980). Toward a career psychology of women: What do we know? What do we need to know? *Journal of Counselling Psychology*, 27(1), 44-62.
- Fouad, M.A., & Bingham, R.P. (1995). Career counselling with racial and ethnic minorities. In W.B. Walsh & S.H. Osipow (Eds.), *Handbook of Vocational Psychology*, (pp. 67-110). Mahwah, NJ: Erlbaum.
- Foxcroft, C., & Roodt, G. (2001). *An introduction to psychological assessment in the South African context*. Cape Town, South Africa.
- France, M., Jen, Y., Huang, K., Si, F., & Zhang, W. (1991). Career needs of Chinese middle school students and implications for school guidance in the People's Republic of China. *The Career Development Quarterly*, 155-167.
- Gama, J.S. (1984). *Exploring Soweto Youth Vocational Guidance Needs*. Unpublished masters thesis, University of South Africa.

- Gerstein, M., Lichtman, M., & Barokas, J.U. (1988). The occupational plans of adolescent women compared to men. A cross-sectional examination. *Career Development Quarterly*, 36, 222-230.
- Glover, R.W., & Marshall, R. (1993). *Improving the school to work transition of American adolescents*. Teachers College Record, 94, 588-610.
- Goodson, W.D. (1981). Do career development needs exist for all students entering college or just the undecided? *Journal of College student Personnel*, 22, 413-417.
- Gordon, A. (1983). Attitudes of employers to the recruitment of graduates, *Educational Studies*, 9, 1, 45-64.
- Gordon, V.N. (1982). The undecided student: A developmental perspective. *Personnel and Guidance Journal*, 49, 433-439.
- Gottfredson, L. (1981). Circumscription and compromise: a development theory of occupational aspirations. *Journal of Counseling Psychology*, 28, 545-579.
- Gray, K.C., & Herr, E.L. (1996). *Other ways to win: Creating alternatives for high school graduates*. Thousand Oaks, CA: Corwin Press.
- Grotevant, H.D., & Durrett, M.E. (1980). Occupational knowledge and career development in adolescence. *Journal of Vocational Behavior*, 17, 171-182.
- Gustafson, S.B., & Magnusson, D. (1991). *Female Life Careers: A Pattern Approach*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Gustafson, S., Stattin, H., & Magnusson, D. (1992). Aspects of the development of a career versus homemaking orientation among females: The longitudinal influence of educational motivation and peers. *Journal of Research on Adolescence*, 2, 241-259.
- Guzzetti, B., & Williams, W. (1996). Gender, text, and discussion: Examining intellectual safety in the science classroom. *Journal of Research in Science Teaching*, 33, 5-20.

- Gysbers, N.C. (1987). Career Guidance: a professional heritage and future challenge. In G.R. Walz (Ed.), *Research & Counselling Building strong school counseling programs*, 99-123. Alexandria, V.A: American Association for counseling & development.
- Gysbers, N.C. (1998). *Career Counseling: Process, issues and techniques*. Boston: Allyn & Bacon.
- Hackett, G., & Betz, N.E. (1981). A self-efficacy approach to the career development of women. *Journal of Vocational Behavior*, 18, 326-339.
- Haller, E.J., & Virkler, S.J. (1993). Another look at rural-nonrural differences in students' educational aspirations. *Journal of Research in Rural Education*, 9, 170-178.
- Hamilton, S.F., & Hamilton, M.A. (1994). *Opening career paths for youth: What can be done? Who can do it?* Washington DC: American Youth Policy Forum.
- Hansen, T.D., & McIntire, W.G. (1989). Family structure variables as predictors of educational and vocational aspirations of high school seniors. *Research in Rural Education*, 6, 39-50.
- Hanson, S.L. (1996). *Lost talent: Women in the sciences*. Philadelphia: Temple University Press.
- Harari, H., Oren, H., & Robert, V.W. (1985). The reaction to rape by American bystanders. *Journal of Social Psychology*, 125, 653-658.
- Harding, J. (1986). The making of a scientist? In J. Harding (Ed.), *Perspectives on gender and science* (pp. 159-167). London: Falmer Press.
- Harris, B. (1997). *An enquiry into the value of work experience as a part of a career guidance programme for Grade 11 pupils in a co-educational high school*. Unpublished masters thesis, University of Natal, Pietermaritzburg.

Harter, S. (1981). A model of mastery motivation in children: Individual differences and developmental change. In W. Collins (Ed.), *Aspects of the development of competence: The Minnesota symposia on child psychology* (Vol. 14, pp. 215-255). Hillsdale, NJ: Erlbaum.

Hartman, B.W., Fuqua, D.R., & Blum, C.R. (1985). A path-analytic model of career indecision. *Vocational Guidance Quarterly*, 33, 231-240.

Healy, C.C., & Reilly, K.C. (1989). Career needs of community college students. Implications for services and theory. *Journal of College Student Development*, 30, 541-545.

Herman, H.D. (1970). *Aanpassingsprobleme van adolessente aan kleurlinghoerskole*. Unpublished masters thesis, University of Western Cape, Bellville.

Herr, E.L. & Gramer, S.H. (1993). *Career guidance and counselling through the lifespan*. New York, NY: Harper Collins Publishers.

Herr, E.L., & Gramer, S. (1996). *Career guidance and counseling through the lifespan*. (3rd ed.). New York: Harper-Collins.

Herr, E.L., Rayman, J.R., & Gans, J.W. (1993). *Handbook for the college and university career centre*. Greenwood Press.

Hess, R. D., Holloway, S.D., Dickson, W.P., & Price, G.G. (1984). Maternal variables as predictors of children's school readiness and later achievement in vocabulary and mathematics in sixth grade. *Child Development*, 55, 1902-1912.

Hickson, J., & White, E. (1989). Career maturity development in black South African adolescents: Implications for vocational counselling. *South African Journal of Education*, 77-81.

Higher Education Research Institute. (1996). *The American Freshman: National norms for Fall, 1996*. Los Angeles: University of California, Graduate School of Education and Information Studies.

Hill, O.W., Pettus, W.C., & Hedin, B.A. (1990). Three studies of factors affecting the attitudes of Blacks and females toward the pursuit of science and science-related careers. *Journal of Research in Science Teaching*, 27, 289-314.

Holland, J.L., & Holland, J.E. (1977). Vocational indecision: More evidence and speculation. *Journal of Counseling Psychology*, 24, 404-414.

Howley, A.A., Pendarvis, E.D., & Howley, C.B. (1988). Gifted students in rural environments: Implications for school programs. *Rural Special Education Quarterly*, 8, 43-50.

Hoyt, K.B. (1975). Career Education: Challenges for counsellors. *Vocational Guidance Quarterly*, 23, 303-310.

Hughey, K.F., & Hughey, J.K. (1999). Preparing Students for the Future: Making Career Development a Priority. *Journal of Career Development*, 25(3), 203-216.

Human Sciences Research Council. (1998). *Career Mentor 98*. Johannesburg.

Hutchinson, R.L., & Bottorff, R.L. (1986). Selected High school counselling services: student assessment. *School Counsellor*, 33, 350-354.

Ide, J.K., Parkerson, J., Haertel, G.D., & Walberg, H.J. (1981). Peer group influence on educational outcomes: A quantitative synthesis. *Journal of Educational Psychology*, 73, 472-484.

Jacobs, J.E. (1991). Influence of gender stereotypes on parent and child mathematics attitudes. *Journal of Educational Psychology*, 83, 518-527.



Jacobs, J.E., & Eccles, J.S. (1992). The impact of mothers' gender-role stereotypic beliefs on mothers' and children's ability perceptions. *Journal of Personality and Social Psychology*, 63, 932-944.

Jacobs, J.E., & Weisz, V. (1994). Gender stereotypes: Implications for gifted education. *Roeper Review*, 16, 152-155.

Jenkins, L.B., & MacDonald, W.B. (1989). Science teaching in the spirit of science. *Issues in Science and Technology*, 5, 60-65.

Johnson, J., & Extrema, J.S. (1982). *Positive images: Breaking stereotypes with children's television*. Beverly Hills, CA: Sage.

Jones, G. (1991). Gender differences in science competitions. *Science Education*, 75, 159-167.

Jones, L.R., Mullis, I.V., Raizen, S.A., Weiss, I.R., & Weston, E.A. (1992). *The 1990 science report card: NAEP's assessment of fourth, eighth, and twelfth graders*. Princeton, NJ: Educational Testing Services.

Jordaan, J.P. (1963). Exploratory behaviour: the formation of self and occupational concepts. In D.E. Super; R. Starinskisky; N. Matlin & J.P. Jordaan (eds.), *Career Development: Self-Concept Theory*. New York: College Entrance Examination Board.

Jovanovic, J., Solano-Flores, G., & Shavelson, R.J. (1994). Performance-based assessment: Will gender differences in science achievement be eliminated? *Education and Urban Society*, 26, 352-366.

Kahle, J.B., & Lakes, M. (1983). The myth of equality in science classrooms. *Journal of Research in science Teaching*, 20, 131-140.

Kahle, J.B., & Meece, J. (1994). Research on gender issues in the classroom. In D.L. Gabel (Ed.), *Handbook of research on science teaching and learning* (pp. 542-557). New York: Macmillan.

- Kahle, J.B., & Rennie, L.J. (1993). Ameliorating gender differences in attitudes about science: A cross-national study. *Journal of Research in Science Teaching*, 2, 321-334.
- Kammer, P.P. (1985). Career and life-style expectations of rural eighth-grade students. *The School Counselor*, 33, 18-25.
- Kelly, A. (1981). Choosing or channelling? In A. Kelly (Ed.), *The missing half: girls and science education* (pp. 5-17). Manchester, England: Manchester University Press.
- Kelly, A. (1987). Why girls don't do science. In A. Kelly (Ed.), *Science for girls?* (pp. 12-17). Philadelphia: Open University Press.
- Kerr, B.A. (1988). Raising the career aspirations of gifted girls. *Vocational Guidance Quarterly*, 32, 37-43.
- Kimbrough, V., & Salomone, P. (1993). African Americans: Diverse people, diverse career needs. *Journal of Career Development*, 265-279.
- King, L.A., & Miller, A.Z. (1984). Career development: implications for providers of careers services in higher education. *International Journal for the Adolescents of counseling*, 7, 289-295.
- Kingdom, M., & Sedlacek, W.E. (1981). *Differences between women who choose traditional and non-traditional careers*. College Park MD: University of Maryland, College Park Counseling Center. (ERIC Document Reproduction Service No. ED 206 832)
- Kishor, N. (1981). The effect of self-esteem and locus of control in career decision making of adolescents in Fyi. *Journal of Vocational Behavior*, 19, 227-232.
- Kleinsasser, A.M. (1986). *Exploration of an ambiguous culture: Conflicts facing gifted females in rural environments*. Paper presented at the Conference of the National Rural and Small Schools Consortium, Bellingham, WA. (ERIC Document Reproduction Service No. ED 278 522)

- Ko, G.P., & Wong, P. (1990). *Secondary School Students in Hong Kong: Expectations and Perceptions of School Social Work and Guidance Teacher Service*. Hong Kong: City Polytechnic of Hong Kong.
- Korman, J. (1992). A social learning theory of career selection. *Journal of Career Counseling*, 7, 6-10.
- Kracke, B. (1997). Parental behaviours and adolescents' career exploration. *Career Development Quarterly*, 45, 341-350.
- Krumboltz, J.D. (1992). The wisdom of indecision. *Journal of Vocational Behavior*, 41, 239-244.
- Lang, P. (1983). How pupils see it: how pupils perceive pastoral care. *Pastoral Care in Education*, 1, 164-174.
- Lapan, R.T., Gysbers, N.C., & Sun, Y. (1997). The impact of more fully implemented guidance programs on the school experience of high school students. *Journal of Counseling and Development*, 292-302.
- Lapan, R.T., & Jingeleski, J. (1992). Circumscribing vocational aspirations in junior high school. *Journal of Counseling Psychology*, 39, 81-90.
- Larson, L.M., & Heppner, P.P. (1985). The relationship of problem solving appraisal to career decision and indecision. *Journal of Vocational Behavior*, 26, 55-65.
- Law, B. (1996). Career education in a curriculum. In A.G. Watts, B. Law, J. Killen, J.M. Kidd, and R. Hawthorne (Ed.), *Rethinking Career Education and Guidance: Theory, policy and practise*. London: Routledge.
- Lawler, A.C. (1977). *Career exploration with women using the Non-Sexist Vocational Card Sort and the Self-Directed Search*. Unpublished doctoral dissertation, University of North Carolina at Chapel Hill. Ann Arbor, MI: University Microfilms.

- Lee, D. (1990). Counselors, career education and minorities. *Journal of Vocational Behavior*, 133-140.
- Lee, V. (1997). Gender equity and the organizations of schools. In B. Bank & P. Hall (Eds.), *Gender, equity, and schooling: Policy and practice* (pp. 135-158). New York: Garland.
- Lent, R.W., Brown, S.D., & Hackett, G. (1994). Toward a unified social cognitive theory of career/academic interest, choice and performance. *Journal of Vocational Behavior*, 45, 79-122.
- Lester, J. (ed.) (1992). *From pilot to practice: strengthening career development programs*. Stillwater, OK: NOICC Training Support Centre.
- Leung, S. (1995). Career Development and counselling: A multi-cultural perspective. *Handbook of multicultural counselling*, pp 549-566.
- Levin, T., Sabar, N., & Libman, Z. (1991). Achievements and attitudinal patterns of boys and girls in science. *Journal of Research in Science Teaching*, 28, 315-328.
- Loesch, L.C., & Sampson, J.P. (1978). Job knowledge and vocational preferences. *Vocational Guidance Quarterly*, 27, 55-60.
- Lombo, M.S. (1993). *An investigation into the present state of school guidance in Ciskeian Secondary Schools in the Keiskammahoek Area*. Unpublished masters thesis, Rhodes University, Grahamstown.
- Lucas, M.S., & Epperson, D.L. (1990). Types of vocational undecidedness: A replication and refinement. *Journal of Counseling Psychology*, 37, 382-388.
- Lunneborg, P.W. (1982). Role model influences of non-traditional professional women. *Journal of Vocational Behaviour*, 20, 276-281.

- Luzzo, D.A. (1995). Gender differences in college students' career maturity and perceived barriers in career development. *Journal of Counseling and Development*, 73, 319-322.
- Marjoribanks, K. (1986). A longitudinal study of adolescents' aspirations as assessed by Seginer's model. *Merrill-Palmer Quarterly*, 32, 211-230.
- Marsh, H. (1992). Extracurricular activities: Beneficial extension of the traditional curriculum or subversion of academic goals? *Journal of Educational Psychology*, 84, 553-562.
- Matyas, M.L., & Dix, L.S. (1992). *Science and engineering programs: On target for women?* Washington, DC: National Academy Press.
- Mau, W.C. (1995). Educational planning and academic achievement of middle school students: A racial and cultural comparison. *Journal of Counseling & Development*, 73, 518-526.
- Mau, W., Domnick, M., & Ellsworth, R. (1995). Characteristics of female students who aspire to science and engineering or homemaking occupations. *Career Development Quarterly*, 43, 323-337.
- McGillicuddy-DeLisi, A.V. (1985). The relationship between parental beliefs and children's cognitive level. In I.E. Sigel (Ed.), *Parental belief systems* (pp. 7-24). Hillsdale, NJ: Erlbaum.
- McGregor, D. (1988). *An investigation into guidance needs of a group of secondary school pupils*. Unpublished masters thesis, Rhodes University, Grahamstown.
- McLaughlin, M.W., Irby, M.A., & Langman, J. (1994). *Urban sanctuaries: neighborhood organizations in the lives and futures of inner-city youth*. San Francisco: Jossey-Bass.
- McLure, G.T., & Piel, E. (1987). College bound girls and science careers: Perceptions of barriers and facilitating forces. *Journal of Vocational Behavior*, 12, 172-183.

- Mendel, R. (1994). *The American school-to-career movement: A background paper for policymakers and foundation officers*. Washington DC: American Youth Policy Forum.
- Mendoza, J.D., & Siess, T.F. (1976). Counselling for indecisiveness: Problem solving and anxiety management training. *Journal of Counseling Psychology*, 23, 339-347.
- Miller, F.W. (1978). *Guidance principles & services*. New York: Bell & Hopewell.
- Miller, M.F. (1982). Interest pattern structure and personality characteristics of clients who seek career information. *Vocational Guidance Quarterly*, 31, 28-35.
- Mitchell, A.M., Jones, B.G., & Krumboltz, J.D. (1979). *Social learning and career decision making*. Granston, RI: Carroll Press.
- Mtolo, M.Z. (1996). *Tertiary students' perspectives on secondary school career education: A consumer perspective*. Unpublished masters thesis, University of Natal, Pietermaritzburg.
- Multon, K.D., Heppner, M.J., & Lapan R.T. (1995). An empirical derivation of career decision sub-types in a high school sample. *Journal of Vocational Behavior*, 47, 76-92.
- Munson, W. (1992). Self-esteem, vocational identity, and career salience in high school students. *Career Development Quarterly*, 40, 361-368.
- Murgatroyd, S.J. (1977). Pupils' perception of counselling: a case study. *British Journal of Guidance & Counseling*, 13, 266-275.
- Naicker, A. (1994). The psycho-social context of career counselling in South African Schools. *South African Journal of Psychology*, 27-34.
- Naicker, D. (1993). *School guidance counselling in Natal*. Unpublished masters thesis, Rhodes University, Grahamstown.
- National Education Policy Investigation. (1992). *NERI: Support Services*. Cape Town: Oxford University Press.

- Neuman, W.L. (2000). *Social Research Methods: Qualitative and Quantitative approaches*. (4<sup>th</sup> ed.), U.S.A.: Allyn & Bacon.
- Newman, J.L. (1990). Further evidence for the use of career sub-types in defining career status. *The Career Development Quarterly*, 39, 178-188.
- Newton, P. (1986). Female engineers: Femininity redefined? In J. Harding (Ed.), *Perspectives on gender and science* (pp. 40-61). London: Falmer Press.
- Ntshangase, S.M. (1995). *A study of Black school pupils' perceptions of the usefulness of school counsellors*. Unpublished masters thesis, University of Natal, Pietermaritzburg.
- Omwig, C.P., & Thomas, E.G. (1977). The relationship between career education, sex, and career maturity of sixth and eighth grade pupils. *Journal of Vocational Behavior*, 11, 322-331.
- Osipow, S.H., & Littlejohn, E.M. (1995). Towards a multicultural theory career development: Prospects & dilemmas. In F.T. Leong (Ed.), *Career development and vocational behaviour of racial and ethnic minorities*, 251-262. Mahwah, N.J., & Lawrence Erlbaum.
- Parnell, D. (1986). *The neglected majority*. Washington, D.C.: Community College Press.
- Parsons, F. (1909). *Choosing a vocation*. Boston, MA: Houghton-Mifflin.
- Parsons, J. (1985). *Graduate recruitment*, Industrial Society, Springs.
- Parsons, J.E., Adler, T.F., & Kaczala, C. (1982). Socialization of achievement attitudes and beliefs: Classroom influences. *Child Development*, 53, 322-339.
- Peng, H., & Herr, E.L. (1999). The impact of career education courses on career beliefs and career decision making among business college students in Taiwan. *Journal of Career Development*, 25.

- Peterson, G.W., Stivers, M.E., & Peters, D.F. (1986). Family versus non family significant others for the career decisions of low-income youth. *Family Relations*, 35, 417-424.
- Phillips, S. (1992). Career counselling: choice and implementation. In S.D. Brown & R.W. Lent. (Eds), *Handbook of Counseling Psychology* (2<sup>nd</sup> edn) (pp. 513-547). New York: Wiley.
- Pietrofesa, J.J., Bernstein, B., Minor, J., & Stanford, S. (1980). *Guidance – An Introduction*. Chicago, Rand McNally’.
- Poole, M.E. (1983). *Youth: Expectations and transitions*. Melbourne: Routledge & Kegan Paul.
- Poole, M.E., & Cooney, G.H. (1985). Careers: Adolescent Awareness and Exploration of Possibilities for Self. *Journal of Vocational Behavior*, 26, 251-263.
- Post, P., Williams, M., & Brubaker, L. (1996). Career and lifestyle expectations of rural eighth grade students: A second look. *Career Development Quarterly*, 44, 250-257.
- Prediger, D.J., & Noeth, R.J. (1979). Effectiveness of brief counselling intervention in stimulating vocational exploration. *Journal of Vocational Behavior*, 14, 352-368.
- Pryor, R.G.L. (1985). Towards a composite theory of career development and choice. *British Journal of Guidance and Counseling*, 13, 225-237.
- Rapoza, R., & Blocker, D. (1976). The Cinderella effect: Planning avoidance in girls. *Counseling and Values*, 8, 12-19.
- Rea-Potat, M.B., & Martin, P.F. (1991). Taking your place: A summer program to encourage non-traditional career choices for adolescent girls. *Career Development Quarterly*, 40(2), 182-188.
- Reich, R.B. (1994). *The revolt of the anxious class*. Washington, D.C.



- Rice, T., & Coates, D. (1995). Gender role attitudes in the southern United States. *Gender and Society*, 9, 744-756.
- Rojewski, J.W. (1994). Career indecision types for rural adolescents from disadvantaged and nondisadvantaged backgrounds. *Journal of Counseling Psychology*, 41, 356-363.
- Russo, T.J. , Kasser, W. (1989). A comprehensive needs assessment package for Secondary School guidance programs. *School Counsellor*, 36, 265-269.
- Salomone, P.R. (1982). Difficult cases in career counselling: II. The indecisive client. *Personnel and Guidance Journal*, 60, 496-500.
- Sarigiani, P.A., Wilson, J.L., Petersen, A.C., & Vicary, J.R. (1990). Self-image and educational plans of adolescents from two contrasting communities. *Journal of Early Adolescence*, 10, 37-55.
- Savickas, M.L. (1984). Career maturity: The construct and its measurement. *Vocational Guidance Quarterly*, 32, 222-231.
- Savickas, M.L., & Jarjoura, D. (1991). The career decision skill as a type of indicator. *Journal of Counseling Psychology*, 38, 85-90.
- Savickas, M.L., Silling, S.M., & Schwartz, S. (1984). Time perspective in vocational maturity and career decision making. *Journal of Vocational Behavior*, 25, 258-269.
- Scans (1991). *What work requires of schools: A scan report for America 2000*. Washington, D.C: U.S. Department of Labour.
- Schibeci, R.A., & Riley, J.P. (1986). Influence of students' background and perceptions on science attitudes and achievement. *Journal of Research in Science Teaching*, 23, 177-187.
- Schumacher, S. & Mcmillan, S.H. (1993). *Research in Education: A conceptual Introduction*. Harper Collins, 3<sup>rd</sup> edition.

Serling, D.A., & Betz, N.E. (1990). Development and evaluation of a measure of fear of commitment. *Journal of Counseling Psychology, 37*, 91-97.

Sewell, W.H., & Hauser, R.M. (1980). The Wisconsin longitudinal model of social and psychological factors in aspirations and achievements. *Research in Sociology of Education and Socialization, 1*, 59-99.

Sewell, W., Haller, A., & Straus, M. (1957). Social status and educational and occupational aspiration. *American Sociological Review, 22*, 67-73.

Siann, G.S., Draper, J., & Cosford, B. (1982). Pupils as consumers: perceptions of guidance and counselling in a Scottish school. *British Journal of Guidance and Counselling, 10*, 51-61.

Silbereisen, R.K., Vondracek, F.W., & Berg, L.A. (1997). Differential timing of initial vocational choice: The influence of early childhood family relocation and parental support behaviours in two cultures. *Journal of Vocational Behavior, 50*, 41-59.

Sinclair, K.E., Crouch, B., & Miller, J. (1977). Occupational choices of Sydney teenagers: Relationships with sex, social class, grade level, and parent expectations. *Australian Journal of Education, 21*, 41-54.

Skuy, M., Hoar, R., Oakley-Smith, T., & Westaway, M. (1985). Perceptions of a guidance teacher as preferred helping agent in some African Schools. *British Journal of Guidance and Counseling, 13*, 266-275.

Southern, W.T., Spicker, H.H., & Davis, B.I. (1987). The rural gifted child. *Gifted Child Quarterly, 31*, 155-157.

Spokane, A.R. (1991). *Career Intervention*. Engelwood Cliffs, NJ: Prentice-Hall.

Stage, E.K., Kreinberg, N., Eccles, J., & Becker, J.R. (1985). Increasing the participation and achievement of girls and women in mathematics, science, and engineering. In S.S. Klein (Ed.), *Handbook for achieving sex equity through education* (pp. 237-268.). Baltimore, MD: Johns Hopkins University Press.

- Stead, G.B. (1988). *Career decisional states and their correlates amongst white high school pupils*. Unpublished doctoral dissertation, University of Port Elizabeth, Port Elizabeth.
- Stevenson, H.W., & Newman, R.S. (1986). Long-term prediction of achievement and attitudes in mathematics and reading. *Child Development*, 57, 646-659.
- Stoney, S.M. (1984). Career guidance in colleges and polytechnics: an overview of current practice and provision. *Educational Research*, 26, 89-99.
- Stumpf, S.A., Austin, E.J., & Hartman, K. (1983). The impact of career exploration and interview readiness on interview performance and outcomes. *Journal of Vocational Behavior*, 24, 221-235.
- Stumpf, H., & Stanley, J. (1996). Gender related differences on the College Board's Advanced Placement and Achievement tests, 1982-1992. *Journal of Educational Psychology*, 88, 353-364.
- Super, D.E. (1955). The dimensions and measurement of vocational maturity. *Teachers College Record*, 57, 151-163.
- Super, D.E., Thompson, A.S., Lindeman, R.H., Jordaan, J.P., & Myers, R.A. (1981). *Career Development Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Taber, K. (1992). Science relatedness and gender appropriateness of careers: Some pupil perceptions. *Research in Science and Technological Education*, 10, 105-115.
- Taylor, K.M., & Betz, N.E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior*, 22, 63-81.
- Thomas, G.E. (1985). *Understanding the major field choice and career aspirations of Black college students*. Atlanta: Southern Education Foundation.

- Tiedeman, D.V. (1961). Decision and vocational development: A paradigm and its implications. *Personnel and Guidance Journal*, 53, 706-710.
- Tiedeman, D.V. (1976). Structuring personal integrating into career education. *Personnel and Guidance Journal*, 53, 422-428.
- Tyler, L.E. (1983). *Thinking creatively: A new approach to psychology and individual lives*. San Francisco: Jossey-Bass.
- Tyler, L.E. (1978). *Individuality, human possibilities and personal choice in the psychological development of men and women*. San Francisco: Jossey-Bass.
- Tyler, L.E., Sundberg, N.D., Rohila, P.K., & Green, M.M. (1968). Patterns of choices in Dutch, American and Indian adolescents. *Journal of Counseling*, 15, 522-529.
- Vaden-Kiernan, N.A. (1992). Predictors of occupational and educational aspirations among low-income, African-American girls. *UMI Dissertation Services*. A Bell & Howell Company. Ann Arbor, Michigan.
- Van Matre, G., & Cooper, S. (1984). Concurrent evaluation of career indecision and indecisiveness. *The Personnel and Guidance Journal*, 62, 637-639.
- Vondracek, F.W. (1990). Dimensions of career indecision. *Journal of Counseling Psychology*, 37, 98-106.
- Wanberg, C.R., & Muchinsky, P.M. (1992). A topology of career decision status: Validity extension of the Vocation Decision Status Model. *Journal of Counseling Psychology*, 39, 71-80.
- Watts, A.G. (1980). Career guidance under apartheid. *International Journal for the Advancement of Counseling*, 3-27.
- Watts, A.G. (1977). Career education in higher education: principles and practice. *British Journal of Guidance and Counseling*, 5(2), 167-184.

Weinburgh, M. (1995). Gender differences in student attitudes toward science: A meta-analysis of the literature from 1970 to 1991. *Journal of Research on Science Teaching*, 32, 387-398.

Weissburg, M., Berentsen, M., Cote, A., Cravey, B., & Heath, K. (1982). An assessment of the personal, career and academic needs of undergraduate students. *Journal of College student Personnel*, 23, 115-122.

Westbrook, B.W., Cutts, C.C., Madison, S.S., & Arcia, M. (1980). The validity of Crites model of career maturity. *Journal of Vocational Behavior*, 16, 249-281.

Wigfield, A.L., & Eccles, J.S. (1992). The development of achievement task values: A theoretical analysis. *Development Review*, 12, 265-310.

Wikeley, F., & Stables, A. (1999). Changes in school students' approaches to subject option choices: a study of pupils in the West of England in 1984 and 1996. *educational Research Volume*, 41(3), 287-299.

Wilson, J., & Daniel, R. (1981). The effects of a career-options workshop on social and vocational stereotypes. *Vocational Guidance Quarterly*, 29, 341-349.

Xie, H. (1990). *Sex role, field independent career decision making style, career self-efficacy and career uncertainty*. Unpublished masters thesis, National Taiwan, Normal University, Taipa, Taiwan.

Yanico, B.J. (1980). Student's self-reported amount of information about "masculine" and "feminine" occupations. *Vocational Guidance Quarterly*, 28, 344-350.

Young, P.M. (1985). *The influence of parents on the educational and occupational decision making of their children: Reducing sex role stereotyping in vocational education*. Laramie, WY: University of Wyoming, Laramie College of Education. (ERIC Document Reproduction Service No. ED 277 813)

Zimbelman, K. (1987). Locus of control and achievement orientation in rural and metropolitan youth. *Journal of Rural Community Psychology*, 8, 50-55.

Zunker, V.G. (1990). *Career Counseling: Applied concepts of life planning*. Pacific Grove, CA: Brooks/Cole.

## QUESTIONNAIRE

1. This is a questionnaire on students' career preferences. The aim is to find out the influence of career education on career choice.
2. Each of us is expected to give his/ her own response.
3. At the end of each statement there are two options  
YES NO
4. Depending on your response about each statement, indicate by means of a cross (X) in one of two options whether your response is yes or no. Read each statement carefully and indicate your choice by means of a cross.

### EXAMPLE

Sort Letters      ~~YES~~      NO

5. Answer these questions in accordance with the instructions accompanying this questionnaire.
6. supply all the particulars required.

Thank you for assisting us.

Please turn to next page.

## Welcome to the Career Mentor

Name : \_\_\_\_\_

Gender : \_\_\_\_\_

### A. Career Preference Inventory

Read each statement carefully and indicate whether you would like or dislike doing each of the activities as part of your job one day. Indicate your choice by means of a cross on YES if you would LIKE doing this activity or on NO if you would DISLIKE doing this activity.

- |   |     |    |
|---|-----|----|
| 1. Write news reports for a newspaper                         | yes | no |
| 2. Interpret spoken words from one language to another        | yes | no |
| 3. Write an article for a magazine                            | yes | no |
| 4. Read new reports on the radio                              | yes | no |
| 5. Write the wording for an advertisement                     | yes | no |
| 6. Do translations  | yes | no |
| 7. Write books, plays and poetry                              | yes | no |
| 8. Draw and design houses and buildings                       | yes | no |
| 9. Take art photographs                                       | yes | no |
| 10. Draw and design furniture                                 | yes | no |
| 11. Decorate the interior of homes and offices                | yes | no |
| 12. Draw and design advertisements and posters                | yes | no |
| 13. Create sculptures   | yes | no |
| 14. Draw pictures or do oil paintings                         | yes | no |
| 15. Play a musical instrument                                 | yes | no |
| 16. Become a professional dancer                              | yes | no |
| 17. Take part in a musical play                               | yes | no |
| 18. Perform at song festivals                                 | yes | no |
| 19. Act in plays on the stage                                 | yes | no |
| 20. Present an entertainment programme on radio or television | yes | no |
| 21. Play a musical instrument in a dance band                 | yes | no |
| 22. Buy goods and sell them at a profit                       | yes | no |
| 23. Sell property such as stands and houses                   | yes | no |
| 24. Purchase and sell shares                                  | yes | no |
| 25. Attend auctions to buy goods                              | yes | no |
| 26. Make purchases on behalf of a business                    | yes | no |
| 27. Buy and sell land for a profit                            | yes | no |
| 28. Sell cars   | yes | no |
| 29. Supervise and manage all the activities in a hotel        | yes | no |
| 30. Manage a small business                                   | yes | no |
| 31. Head a big firm   | yes | no |
| 32. Plan other people's job assignments                       | yes | no |
| 33. Manage the financial affairs of a firm                    | yes | no |
| 34. Manage a big project                                      | yes | no |
| 35. Supervise the work of others                              | yes | no |
| 36. Advertise a business undertaking                          | yes | no |
| 37. Make political speeches                                   | yes | no |
| 38. Promote tourism   | yes | no |
| 39. Talk in public  | yes | no |
| 40. Convince people of a point of view                        | yes | no |



41. Lead a group of people	yes	no
42. Campaign for a political party	yes	no
43. Do general secretarial work	yes	no
44. File documents	yes	no
45. Sort letters	yes	no
46. Receive and send off parcels	yes	no
47. Type letters	yes	no
48. Proofread documents for typing errors	yes	no
49. Take telephone messages and arrange appointments	yes	no
50. Receive and pay out money in a bank	yes	no
51. Keep careful record of income and expenses	yes	no
52. Receive payments and write out receipts	yes	no
53. Calculate the salaries of employees	yes	no
54. Do the bookkeeping of a small business	yes	no
55. Check the financial statements of a company	yes	no
56. Draw up a budget of a company	yes	no
57. Make copies of documents with a copying machine	yes	no
58. Use a fax machine to send messages	yes	no
59. Work on a switchboard	yes	no
60. Use a stapler to staple pages together	yes	no
61. Work with office machinery such as a typewriter or word processor	yes	no
62. Feed information into a computer with a terminal or keyboard	yes	no
63. Operate office machines	yes	no
64. Work in a science lab	yes	no
65. Study physical science matters such as gravitation and magnetism	yes	no
66. Use mathematical formulas in your work	yes	no
67. Work on a science project	yes	no
68. Do chemistry experiments	yes	no
69. Study the structure and origin of rocks and soil	yes	no
70. Use statistical methods for interpreting data	yes	no
71. Examine people to diagnose illnesses and to give medical treatment	yes	no
72. Treat sick animals	yes	no
73. Mix and prepare medicines for sick people	yes	no
74. Do microscopical and other laboratory tests daily	yes	no
75. Take X-rays of the human body	yes	no
76. Examine people's teeth to see if they are healthy	yes	no
77. Study the functioning of the human body	yes	no
78. Study the interaction between individuals and groups	yes	no
79. Study human behaviour	yes	no
80. Do research on social and human problems	yes	no
81. Study the history of earlier societies	yes	no
82. Read about economic matters	yes	no
83. Study and analyse political systems	yes	no
84. Analyse legal systems	yes	no
85. Prepare a meal	yes	no
86. Make clothes	yes	no
87. Make and repair leather articles such as shoes, belts and handbags	yes	no
88. Bake biscuits, bread and cakes in a bakery	yes	no
89. Work with meat in a butchery, cut it up and package it	yes	no
90. Work in a kitchen preparing food	yes	no
91. Cut and attend to people's hair	yes	no
92. Work with plants and soil	yes	no

93. Look after animals in a zoo or game reserve	yes	no
94. Plant trees in a plantation	yes	no
95. Work on a farm	yes	no
96. Look after plants in a nursery	yes	no
97. Grow vegetables	yes	no
98. Farm with livestock like sheep and cattle	yes	no
99. Service and repair office machinery	yes	no
100. Install and repair electrical wiring and lights	yes	no
101. Repair cars and keep them in good condition	yes	no
102. Design mechanical equipment	yes	no
103. Install and repair electronic apparatus	yes	no
104. Develop water supply systems	yes	no
105. Build a house	yes	no
106. Teach other people	yes	no
107. Help people to function effectively within the family and community	yes	no
108. Attend to religious needs of people	yes	no
109. Help people to get information	yes	no
110. See to the comfort of passengers in an aeroplane, train or bus	yes	no
111. Help people with their personal problems	yes	no
112. Train people to play sport	yes	no
113. Care for sick people	yes	no
114. Work as a dentist's assistant	yes	no
115. Work as a helper in a hospital	yes	no
116. Assist with exercises for the physically disabled and injured	yes	no
117. Give first aid to injured people	yes	no
118. Care for the elderly	yes	no
119. Attend to and transport an injured person to hospital	yes	no
120. See to the maintenance of law and order	yes	no
121. See to it that people obey the traffic rules	yes	no
122. Protect the country against military enemies	yes	no
123. Guard prisoners	yes	no
124. Protect people's property against fire	yes	no
125. Inspect the health conditions of e.g. factories	yes	no
126. Be responsible for the security of people and places	yes	no

**B. School Subjects**                      Indicate your **current six subjects** at school

NO.	SUBJECTS
1	English
2	Afrikaans
3	
4	
5	
6	
7	

**C. LIST YOUR INTENDED CAREER CHOICE :**

1. \_\_\_\_\_

## Annexure B

### Composition of sample

The questionnaire was administered to 4 276 Grade 9 and Grade 11 learners in the Western Cape, Eastern Cape and Gauteng. The composition of the sample is shown in Table 1.

**Table 1 Composition of Sample (N=4276)**

LANGUAGE	GRADE			
	9		11	
	Male	Female	Male	Female
English second language speakers	326	414	742	1115
English first language speakers	36	31	109	130
Afrikaans first language speakers	279	363	332	297

**Annexure C**

**Reliability of the CPI**

Table 2 reflects the KR-20 reliability coefficients of the fields in the Career Preference Inventory for the different language groups of the sample.

**Table 2 KR-20 reliability coefficients of the Career Preference Inventory (N=4 276)**

Career Preference Fields	English Second Language Speakers		English First Language Speakers		Afrikaans First Language Speakers	
	Male	Female	Male	Female	Male	Female
A1	.749	.720	.807	.776	.793	.782
A2	.763	.737	.777	.815	.797	.799
A3	.831	.805	.781	.734	.788	.754
B1	.822	.828	.835	.819	.858	.807
B2	.784	.777	.750	.812	.781	.772
B3	.707	.694	.741	.664	.750	.713
I1	.726	.752	.806	.799	.757	.758
I2	.811	.799	.747	.696	.791	.778
I3	.709	.659	.814	.718	.802	.770
K1	.787	.792	.828	.914	.816	.854
K2	.835	.828	.891	.882	.888	.888
K3	.778	.784	.832	.845	.812	.851
P1	.559	.593	.628	.598	.648	.578
P2	.757	.691	.772	.789	.791	.731
P3	.715	.699	.800	.840	.741	.780
S1	.744	.689	.733	.671	.762	.756
S2	.823	.800	.803	.832	.808	.851
S3	.756	.739	.737	.658	.801	.888