

**THE EFFECTIVENESS OF CAREER COUNSELLING IN
AN N.E.D. HIGH SCHOOL: A FOLLOW-UP STUDY**

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ABSTRACT

Career counselling has been a compulsory part of the curriculum of many Natal Education Department High Schools for the past twenty years. The credibility and effectiveness of career counselling programmes has been criticized by a number of authors, yet there is a paucity of evaluative research.

Following the administration of a career counselling programme in a single high school, a decision was made to evaluate the programme. 49 of the 106 original matric participants in the programme responded to a questionnaire. The study attempted to assess the predictive ability of the variety of tests used, and to rate the influences upon participants' career decision-making, in a very modest way.

It was found that the group of respondents was not fully representative of the original matriculants, and there was a degree of homogeneity. Difficulties were encountered with the statistical analysis of data, leading to recommendations for future evaluative research. The comparison of test data and current activities did not lead to conclusive results, and it was recommended that pre- and post-programme measures be instituted to lead to better criterion measures, and that tests which lent themselves to better matching with careers be instituted. There were, however, indications of the programme having some effectiveness, in that the teacher-counsellor was rated next after parents as an influence on matriculants' career decision-making.

The field of career counselling merits further evaluative study, and recommendations for this were given.

PREFACE

In this thesis, frequent reference to a number of psychological tests is made. These tests are referred to in their abbreviated form, once their full name has been given in the descriptive chapter.

This whole thesis, unless specifically indicated to the contrary in the text, is my own original work.

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CHAPTER ONE

INTRODUCTION AND LITERATURE REVIEW

At the outset, it is necessary to sketch briefly the development of schools career counselling, with particular reference to Natal. This places the current situation in context. References to the need for, and criticisms of schools career counselling are made, leading to a discussion of evaluation research.

1.1 The context of school career counselling in Natal

Career counselling in "white" schools in South Africa is a relatively new field, having existed in its present form for about twenty years. It is necessary to trace briefly the development of career counselling in South Africa, to place schools counselling in context; and to comment on the evolution of the terminology used, from "employment provision" to "career counselling". Due to the Apartheid system of education, the following summary unfortunately refers only to services offered to the "white" community.

The first "employment provision bureau" was established in South Africa in 1902, and this was followed by "juvenile advisory boards" founded in some larger cities which aimed "to advise children and parents on a choice of vocation" (National Manpower Commission (NMC) report, 1988, p.8). These were subsequently developed into statutory "juvenile affairs boards" under the Department of Labour. In these first years, the focus was on advice-giving related to occupational choice, and the term "vocational guidance" was used. The use of the term "vocation" symbolises the view, at the time, of a "calling" to a particular occupation, and seems to imply a static state, once a particular choice has been made. "Guidance" implies a relatively directive intervention by a person more expert than the client. Although the term

"guidance" is still preferred in certain circles, I will discuss my reasons for not using it in a later paragraph.

In the late 1930's, the first psychologists were appointed to the Cape, Transvaal and Orange Free State Education Departments, and Natal followed suit in 1944. In 1946, the Interdisciplinary Advisory Committee for Vocational Guidance and Employment Provision was appointed, and made various recommendations, including the following:

- * "Education departments had to be responsible for vocational guidance at school."
- * "The National Bureau for Educational and Social Research had to develop psychological tests for use by schools."
- * "The National Institute for Personnel Research had to develop 'screening tests' for vocational guidance."
- * "Education departments had to establish cumulative record cards on pupils."

(From NMC, 1988, p.9)

The training and appointment of guidance teachers for schools was recommended by the De Villiers Commission in 1948, but only became a statutory requirement in the National Education Policy Act in 1967: "that suitable guidance should be furnished to pupils taking into account '... the ability and aptitude of and interest shown by the pupil, and the needs of the country...' " (NMC, 1988, p.10)

The National Institute for Personnel Research (NIPR) "has provided a vocational counselling service for school leavers entering the labour market in the Johannesburg/Pretoria area since the 1950's." (Clarke & Toerien, 1986, p.1) This was to meet a need not being met by the schools. The service was, however, only extended to Natal at the Durban office in 1979.

During the 1950's there was a "greater awareness of the need to help children reach some decision regarding their choice of career and curriculum (possibly as a result of an

intensified awareness of the need to utilize the manpower of a developing industrial and commercial country)" (Basson, 1977, p.156), and vocational officers were appointed to the Education Departments in some provinces.

The first Vocational Guidance Officer was appointed by the Natal Education Department (NED) in 1950 . There is evidence that the NED appointed a Dr. Jordaan to the post in these early years. He had trained under Prof. Super in the USA, and introduced a number of Super's ideas. It was unfortunate that he only remained for a short while before returning to the USA. During the 1950's, certain teachers in Natal High Schools were given vocational guidance work to do, and a booklet was published by the NED to help them in this task (NED, 1955). It was only in the late 1960's that the post filled by the person responsible for co-ordinating the Vocational Guidance was allocated to a trained psychologist, designated as School Psychologist (Guidance).

In 1961, a section entitled "Guidance Work in Schools" became part of the Schools' Handbook, and the functions of Guidance Personnel were enumerated. Guidance personnel included the departmental Vocational Guidance Officer and Teacher Counsellors. It seems that most intervention at that time focussed on the dissemination of information and direct advice related to curriculum selection and vocational choice related to educational progress. By this time certain group intelligence tests, interest questionnaires, aptitude tests and scholastic tests had been developed by the NIPR, and these were to be administered and interpreted by the teachers concerned. For the first time, mention is made of the need for Teacher Counsellors to investigate personal and behaviour problems, to refer on to the School Psychological Services.

During 1971, a Human Sciences Research Council (HSRC) Committee for Differentiated Education and Guidance sat, and their recommendations were implemented in 1972. In the light

of the new differentiated education policy, the NED reviewed the position of Guidance in High Schools. It was found that from 1961 to 1971, the average time spent per pupil per annum on formal guidance had decreased from 1,5 hours to 40 minutes! Of the 64 high schools then existing in Natal, only 11 were devoting more than 30 periods per week to school guidance.

The 1967 HSRC "Talent Survey" focused on Std 8 pupils in South Africa. The results, published in a newsletter in 1973, showed that 23% of the pupils preferred to discuss personal problems with their friends, 52% chose their parents, 3% relatives, and 2% with members of the school staff. Where pupils' future planning was concerned, 70% chose to consult their parents, 2% with the school guidance officer, and 1% with other members of staff. Thus prior to 1970 in Natal, rather limited vocational counselling was available to high school pupils. One of the alternative resources available was the Universities' advisory services.

This inadequate provision of counselling and vocational guidance led to a revised "Guidance Policy" being circulated to all High Schools, in 1972. This contained information regarding the appointment of Teacher-Counsellors and specifying their activities and duties. These functions are to :-

- * "provide individual counselling with regard to educational, vocational, personal and social development
- * provide a system of group guidance according to a planned programme
- * collect, organise and interpret information relative to the pupil
- * organise a testing programme for the school ...
- * provide the principal and teachers with additional information concerning individual pupils in order to bring about a clear understanding of the pupil in the school situation

- * interview parents and provide guidance on subject choice, study methods, vocational choice etc.
- * supervise the maintenance of pupils' individual files and the completion of Ed. Lab. 1 cards
- * collect and make available information relating to educational, vocational and social opportunities
- * liaise with outside bodies...
- * refer cases beyond his scope,...
- * continuously critically review the guidance service in the school
- * assist in research and follow-up work"

(NED 1972, pp.1-2)

Consideration of the above reveals that career counselling was a part of the duty of the teacher counsellor, to be dealt with both in group lessons and in individual sessions.

The teachers appointed to these posts were recommended by their school principals and most had not had training in counselling, although many did have a Psychology major in their degree. The first persons in the posts were thus under-qualified and lacked training, and though there were informal meetings, a newsletter, and some in-service courses, many must have gained in proficiency only through experience.

The provision of training for school guidance was as follows: During the 1960's, a school guidance course was offered as part of the UED teacher training programme of the University of Natal, Pietermaritzburg, and this was formalised as a method course, part of the HDE training programme, in the 1970's. Due to the need for trained Teacher Counsellors, a B.Ed (Qualified as School Counsellor) course was instituted at the same University in 1975, and was popular for a few years. The course became defunct due to a lack of staff, and the B.Ed (Ed.Psych) course was instituted in 1981. At present it is required that a person appointed as teacher-counsellor

has at least a degree with a major in Psychology as well as a teachers' diploma (Nieuwenhuis, 1984, p.79).

By 1977, it was required that every NED high school have a teacher-counsellor, and that the person be involved to a greater or lesser extent in some form of career counselling, available to a number of pupils. There were the equivalent of 70 teacher-counsellors by this time (some schools used more than one person to fill the post).

Other career counselling services were available as well. These included the Student Counselling Centres of the University campuses and the Natal Technikon for prospective students, the services of private counselling and educational psychologists, and other organizations such as the Department of Manpower (whose services have been increasingly used during the past 10 years), the Career Information Centre and the NIPR in Durban. On the whole, though, the majority of pupils did not avail themselves of these services (eg. in 1984, 323 high school pupils visited the NIPR in Durban), so the teacher-counsellors had an important role to play in career counselling.

Many of the developments listed above parallel trends in career counselling in the USA and Britain.

It is now necessary for me to discuss the choice of the words "career" and "counselling".

In the USA and Britain, the term "vocation" was gradually replaced by the term "career" during the 1960's. At that time, "knowledge about occupational choice as a developmental process had increased dramatically", (Gysbers, 1984, p.17) and Gysbers refers to the Super and Bohn statement that " 'It is well...to keep the distinction between occupation (what one does) and career (the course pursued over a period of time)' " (ibid). In many official circles in South Africa, the term

"vocation" is still used (as in the NMC report referred to earlier), however, I have preferred to use the term "career" in this study.

Lewis et al (1986) quote Super's definition of a career as:
" 'The course of events which constitutes a life; the sequence of occupations and other life roles which combine to express one's commitment to work in his or her total pattern of self development...Careers exist only as people pursue them; they are person-centred.' " (p.169)

The reason for the choice of the word "career" is: firstly, that the word emphasises the developmental and ongoing features of the process of career decision making; and secondly, that the process which I will describe in greater detail in Chapter 2 is part of a "Careers Education" package instituted in 1984 by the Natal Education Department (NED). This "careers education...aims to make pupils more self-aware by helping them to explore among other things, their aptitudes, interests, abilities and value systems, and to apply their knowledge of self within the context of life in general, and in career and/or educational decision-making in particular" (Brownell, 1988, p.66).

The choice between the terms "guidance" and "counselling" is contentious in certain circles. The NMC investigation chose to use "guidance" rather than "counselling", because they state " 'vocational counselling' is...the provision of career information and assistance in respect of the integration of personal characteristics and occupational and training requirements excluding, however, psychometric and therapeutic aids. In essence it is therefore vocational advice..." (NMC, 1988, p.4). This would seem to contradict the view of Cook & Visser (1986), who state that "It would seem to be most helpful to reserve the word guidance for this function of offering vocational information ...'Guidance' implies that the person offering the guidance knows what is best for the person

being helped" (p.4). The Webster New Twentieth Century English Dictionary defines counselling as "Consultation; mutual interchange of opinions, ideas, etc; discussion and deliberation". This would appear to describe the interaction between the pupils and the writer in this study more accurately than the term "guidance", which seems to imply advice-giving.

A further reason for my choice of the term "counselling", is that it implies an interaction on a one-to-one basis between the teacher-counsellor and pupil, the focus of this study. Cook & Visser state that "it is not fair to expect guidance teachers, who are not trained in counselling and generally do not have the time for it, to attempt to offer career counselling as distinct from vocational guidance" (ibid). The situation in the Natal Education Department schools at the time of my work, was that individual counselling periods were allocated to teacher-counsellors, and part of that time was taken up with individual career counselling when pupils were in their final year at school. In performing this function, teacher-counsellors were not trying to perform or usurp the role of the Counselling Psychologist, but were doing their best to help facilitate career decision - making. The individual counselling was also not limited to a careers focus.

It is possible that some of the confusion of terms referred to above relate to the translation of words from Afrikaans to English and vice versa. Both "career" and "vocation" are translated to the word "beroep", and both "guidance" and "counselling" are translated to the word "voorligting". For the reasons given in the above paragraphs, however, there is a difference in the meanings and implications of the pairs of English terms which I felt it necessary to discuss.

For the purpose of this study, then, I use the words "career counselling" to mean the individual interaction between the

teacher-counsellor and pupil for the purpose of the provision of career information and assistance. The teacher-counsellor strives to integrate the personal characteristics of the pupil and the requirements of the courses/occupations applicable, with the aid of the results of psychometric tests available for this use. Lewis et al (1986) quote McDaniel's definition of career counselling as a focus "on the career development needs of the individual...There is a concentration on self-understanding, career information, career planning and career decision-making in a dynamic relationship. There is special attention to values and attitudes in the context of a fluid social-psychological-economic environment..." (p.171).

1.2. The need for schools career counselling in South Africa at present

When tracing the development of career counselling, it is noteworthy that many developments are in response to needs provoked by the socio-political milieu at the time. Much research has been in response to manpower needs. "Vocational guidance services developed to meet needs which arose largely as a result of the industrial revolution and the accompanying occupational specialisation" (NMC, 1988, p.47).

In the USA, research in the army during both World Wars, for placement both during and after service, and follow-up studies, led to the development of a number of instruments. This development was aided by the application of factor analysis, a relatively new technique, which identified traits and aptitudes of individuals. Examples of tests developed are: "the Minnesota aptitude tests... and the Army General Classification Tests, as well as occupational-interest inventories, such as those developed by Kuder and Strong..." (Brown, Brooks and Associates, 1990, p.3).

In Britain, during the 1960's, the need for providing vocational information and advice in secondary schools was

attributed to 3 broad factors : " the extension of time which young people spent in the education system; the greater opportunities for them to exercise choice as to the types of jobs they would prefer to enter; and the emergence of theories of occupational choice ..." (Roberts, in Watts, 1986, p.168). Watts discusses the changing context of British schools counselling during the 1970's, "linked ... with economic recession ... difficulties which young people have experienced in entering the labour market...to provide alternatives to unemployment...political pressures...to attach higher priority to employers' needs as opposed to pupils' needs" (ibid, p.170).

In South Africa, aspects mentioned in the above paragraph have been assuming ever greater importance during the 1980's. Whereas in previous decades, white pupils were privileged in terms of both job reservation and the oppressive education system offered to pupils of other race groups leading to such pupils finding it very difficult to compete, the picture is now changing rapidly. The points made below highlight a number of issues which will affect career counselling greatly over the next few years.

- * There is far greater competition for places in tertiary education institutions, with more stringent admission requirements, many now open to all who qualify. Tertiary education is also becoming progressively more expensive, as government subsidies are cut.
- * Job reservation is fast disappearing, and with the very high unemployment figures amongst the majority of the young adult population and their improving educational status, competition for jobs has escalated greatly.
- * Industrial development paired with the "brain drain" of highly qualified people for political or economic reasons during the last decade, has led to a marked shortage of

skilled personnel, and there are vast training needs in the country.

- * The opening of a growing number of schools to all race groups and the need to evaluate the academic orientation of most N.E.D. high schools, where many pupils are not developing occupational skills are other vital factors to be considered.

- * It would seem that many young adults are in positions which do not match their interests, abilities and personality; leading to failure and/or dissatisfaction with the concomitant effects on well-being and functioning.

The above factors need to be seen in the context of the economic recession experienced in the country, and the very high unemployment figures. There have been substantial changes in social structures as well as the new emerging political groupings demanding their right to equal opportunity. The rapid urbanisation of a large proportion of the population and the change during this century from an agricultural to industrial economic base have also had great impact. The changes towards automation rather than labour intensive methods in the workplace, both due to cost-effectiveness and due to increasing attractiveness to management who have had to contend with labour action, also impinge on the availability of work and skills required for work.

A report of an HSRC Main Committee Investigation into Education (1981) stated:

"The school's educational task is of a general formative nature with a greater or lesser degree of concentration during the later phases. The critical question has arisen as to whether there has not developed an excessive distortion of preparatory academic-oriented education at the expense of equally general formative education that serves

as preparation for career possibilities other than those accessible through further academic study." (p.138). They conclude that "it is considered that in the present developmental phase of the RSA (bearing in mind the basic manpower shortages) considerably more than half of the learners should be involved in general formative preparatory career education at the senior intermediate level" (p.139); and, "that during the junior intermediate phase the learner should be introduced to a wide spectrum of possibilities, including the more career-oriented study directions, and receive effective guidance before s/he decides on a field of study...or moves towards the occupational world and non-formal education" (p.141).

These statements have obvious implications for career counselling.

Consideration of the points raised above underlines the need within the high school system for career counselling which will take into account not only the abilities, aptitudes, interests, personality and needs of the individual pupil; but also the socio-economic-political milieu. There is the need to provide programmes and interventions which will be more effective in meeting the above needs for a wider pupil base, in a rapidly changing occupational situation.

To conclude this section, it is sobering to note the statement made by the De Villiers Commission in 1948:

"The Commission is deeply under the impression that the almost revolutionary social and economic changes of the last few decades have resulted in some profound changes in the structure of society, that not only is there urgent need for revision, reconstruction and adaptation, but these new trends have also caused a shift of greatly increased responsibility on our education institutions" (in Brownell, 1972).

Forty years later, during which the system of education under an Apartheid regime has been in force, there is even more need

for "revision, reconstruction and adaptation"! It would seem that the above statement is even more applicable in South Africa in the 1990's, and one is left questioning whether our educational institutions are prepared to respond to these needs.

1.3. The current situation of school counsellors in the NED

During the time that the author was a school-counsellor, (the mid-1980's), the NED required that 7 periods per 100 pupils per week were set aside for group guidance and individual counselling. The school principal was responsible for the allocation of these periods, and Brownell comments that "the school principal's ability to shape attitudes and to determine the success or otherwise of counselling is often paramount" (1988, p.64). Credibility was sometimes an issue for teacher-counsellors because it was difficult to measure the effects of intervention. A further difficulty was the argument "if previous generations coped adequately without counsellors, why not the present one?" (ibid, p.65).

Many would acknowledge the greater need for counsellors at present - "the fears and uncertainties of the present socio-political climate are creating an ever-increasing demand for the services of the helping professions. As a mirror of society, schools reflect this need" (ibid, p.65).

A number of teacher-counsellors felt inadequately equipped to deal with the demands made upon their time, and because they were not appointed in addition to the normal quota of teachers for the school, every counsellor appointed meant a slightly greater burden on other subject teachers, leading to some resentment if the value of the counsellor's work was not visible or believed. Teacher counsellors were encouraged to "demonstrate that they have something intrinsically valuable to offer and get on with the business of providing a service that is both visible and valued" (ibid, p.65). Brownell

encouraged them to focus on carefully selected areas which would have impact both in terms of services offered to the pupils as well as to their teachers and parents, and suggested ✓ careers counselling as an ideal focus.

As an aid to career counselling, counsellors use a variety of mainly group psychometric and scholastic tests to inform the pupils' decision making.

At the end of each year during the later 1980's, schools were faced with staff numbers being trimmed due to a falling pupil population and a required increase in the pupil-teacher ratio, to bring Natal in line with the other provinces, (and directly linked to reduced financial input from the government). The end of 1990 has seen the most marked of the staff cutbacks, and in many high schools, it has been in the area of counselling, particularly time available for individual counselling, where cuts have been made. This has particular implications for individual careers counselling, the focus of this study. Less time will be available in school for this service.

The provision of this service by outside agencies to compensate is very inadequate when one considers the pupil numbers involved. In relation to the available private resources, quite apart from the additional cost to parents, there are the broader educational or ethical issues of whether career counselling is the duty of the school, or of individual parents.

To be sure, the present time is a transition period between separate education and a more integrated system where pupil numbers will be far greater, but the question still remains - ✓ does individual career counselling have an important part to play in the high school curriculum?

1.4. Criticisms of High School Career Counselling

In addition to the criticisms stated or implied in the above section, the De Lange Committee (HSRC investigation into the provision of education in the RSA) recommended an evaluation of school guidance services (NMC,1988). The credibility and effectiveness of career counselling programmes in high schools has been criticized by a number of authors. Beukes (1985) asserts that career counselling has very little effect on pupils' decision making, and that subject teachers exert a far greater influence. The NMC report states that "there is still to a large degree the perception in the guidance community (and also in society as a whole) that school guidance is generally approached halfheartedly and/or neglected" (1988, p.56).

An investigation into current school guidance systems was done by a subcommittee of the HSRC Work Committee: Guidance during the early 1980's. In general, information gathered from questionnaires sent in from many areas of the RSA, indicated that there were large deficiencies in the area of career counselling, which needed rectification. It was obvious to the researchers that the official guidelines of the Education Departments with reference to school counselling, were not always fully adhered to in reality (Nieuwenhuis, 1984, p.145). The most important findings of the investigation were that:

- * "school guidance in its present form was very broadly based and could possibly become too generalised and superficial;
- * the quality of the school guidance service could be adversely influenced by inadequately trained guidance teachers, and
- * guidance personnel were concerned about their prospects of advancement as guidance teachers" (ibid, p.xviii).

The NMC investigated the services offered in High schools and concluded that "the most important problems relate to the shortage of appropriately trained staff; a shortage of funds; the utilisation of staff, the retention of staff in guidance

posts;...liaison; and co-ordination. In general little attention is devoted to guidance as a subject compared with other school subjects" (1988, p.14).

Further, the NMC report (1988) states that many counsellors in direct contact with school leavers report:

- * That school leavers have inadequate decision making skills with reference to courses and career choices
- * That students lack knowledge about admission requirements for courses and occupations
- * That students have a superficial knowledge of a limited number of popular occupational fields.

They state further that there is "no objective data on the effectiveness of vocational guidance components of guidance services by the education departments" (p.55). The report does not give detail of how they arrived at the above conclusions, whether they surveyed all provinces, or the breadth of the sample studied, thus the methodology may be questioned.

Although the above studies are open to criticism, it does seem that many are critical of school counselling because it is either approached unprofessionally and in an unstructured way, or neglected.

1.5 Theoretical basis for Career Counselling

Whilst a comprehensive review of Career Counselling theory is not possible within the constraints of this dissertation, a brief overview of theories, which are referred to in the study, follows. The reader is referred to major works, (Crites, 1969; Osipow, 1983; Brown, Brooks & Associates, 1990), for fuller historical accounts and discussions of the theory. Osipow (1983) categorizes models of career development in five distinct categories, viz: trait-factor theories, sociological models, developmental/self-concept theory, personality approaches, and behavioural approaches (pp.9-11). Examples and discussion of three of the categories follows.

1.5.1. Trait-factor approaches

The trait-factor approach, also known as the matching model, is the oldest theoretical approach. It has its origins in the seminal work of Frank Parsons, who in 1909, outlined a three-part model as the basis for making occupational choices (from Brown, 1990):

- * personal analysis - "he advocated that individuals gain a full understanding of their personal attributes, including both strengths and weaknesses"
- * job analysis - "a thorough understanding of the conditions for success in given occupations, as well as information about compensation and mobility"
- * matching through scientific advising - the application of " 'true reasoning', based on the information at hand, to the choice-making process" (p.14).

The development of scientific measurement of traits of individuals was applied to vocational questions, and the psychometric instruments which resulted became the tools of counsellors involved in the matching approach (for examples of tools see section 1.2.). Researchers at The Minnesota Employment Stability Research Institute, for example E.G. Williamson, "the major spokesperson for ... theory" (Brown, 1990, p.14), and the University of Minnesota provided a great deal of impetus to the development of both theory and practice; other early pioneering universities were Columbia, Ohio State, and Purdue, (Super, 1983b, p.11) and a large amount of research was stimulated.

Trait-factor theorists believe that it is possible to match individual and occupation, and have tended towards a cognitive approach. Toerien (1984) states that "the underlying principles have been a belief in the uniqueness of the individual, and a commitment to the individual's right of free choice" (p.15). He differentiates between two major groups of traits which have been focussed on: abilities - including

aptitude and intelligence, and personality characteristics such as interests and values.

The use of tests and inventories is inherent to the trait-factor approach, and Brown (1990) discusses a number of functions which such instruments can serve. These include: comparison of the individual's attributes to a normative group or occupational group, provision of new insights to the individual, and motivation of the individual by exposing previously unconsidered options (p.24).

The trait-factor approach has been widely criticised for being a "test and tell" method. It seemed to foster client dependence, and counsellors using the methods were accused of rigidity. Brown (1990) quotes Crites' comments about the approach which " 'has been caricatured as three interviews and a cloud of dust'" (p.19). However, he goes on to state that Williamson never advocated such an approach, but that counselling should be client-centred, with the counsellor exercising professional judgement with reference to tests used, counselling " 'for complex and difficult problems of ... adjustment' " (Williamson, 1939, cited in Brown, 1990, p.19).

Osipow (1983) states that "few practitioners ... today are pure trait-factor adherents" (p.9), and that this model has been absorbed into other approaches. Brown (1990), however believes that "no theory or approach yet developed has satisfactorily replaced trait-oriented thinking" (p.20), and goes on to cite its many applications in counselling, industry, business and research. He then lists a number of different papers, presented at the 1987 Fifth International Conference on Vocational Guidance, which applied trait-factor theory to high school career exploration programmes, and concludes that "trait and factor approaches are alive and well in schools, as well as in other settings" (p.35).

1.5.2. Personality theories and career choice

Osipow (1983) states that a number of theorists have investigated "the particular personality factors involved in career choice and career satisfaction", and that numerous research projects have been undertaken to investigate a general underlying hypothesis "that workers select their jobs because they see potential for the satisfaction of their needs" (p.10). Whilst it may seem that such theories could be included in the trait-factor approach, it was decided to separate these due to the emphasis on personality. A leading theorist who may be categorised in this grouping is J.L. Holland.

Super (1983b) views Holland as a transition figure between differential vocational psychology and developmental vocational psychology. Holland adapted the larger occupational interest groupings used by Strong and Kuder (Osipow, 1983, p.9), to form six major categories "that he called personality types on the basis of the nature of the work involved and ... the adjectives used by judges to describe the people in those occupations" (Super, 1983, p.16). He found that these occupational fields and related personality types could be arranged hexagonally to represent the varying degrees of relationship between the categories.

The coding developed by Holland is suitable for interest inventory scores, vocational interests, and occupations, because Holland (1985) describes interest inventory scores as "measures of self-concept, a developmental process ... flowing from life history and personality" (p.7); and vocational interests as representing "the expression of personality in work ... simply another aspect of personality" (ibid). Cronbach (1984) states that "there is a growing accumulation of research literature dealing with personality differences among occupational groups ... Each of Holland's occupational themes corresponds to a 'type' or cluster of personal attributes..." (p.548). The system has extensive support in the literature, and seems to provide a more flexible code than previous

models, with occupations well spread across the six dimensions.

The six dimensions created by Holland are: 'Realistic', 'Investigative', 'Artistic', 'Social', 'Enterprising' and 'Conventional', (coded R, I, A, S, E and C), and are shown diagrammatically in a hexagonal form. The hexagonal structure is justified by larger correlations between some pairs of areas than other pairs as shown. In the figure below, the first correlation is that found in a female sample, and the second correlation on a male sample.

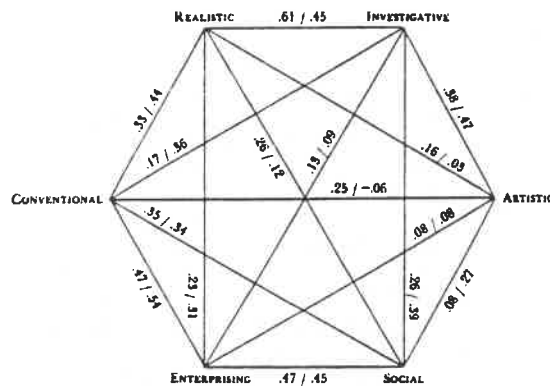


FIGURE 1.1. Holland's Hexagonal Model (Anastasi, 1982, p.542)

Occupations are then allocated to these six dimensions. Some occupations fall into one of the six dimensions, but many are coded as combinations of the six. (See Appendix D for pictorial representation of the groupings). Holland states that adjacent dimensions may be linked, as shown by correlations in the figure above, but that there is less correlation between opposite dimensions (Cronbach, 1984, p.412.). The adjacent pairs give a further six dimensions.

Super (1983b) comments that much of the research done on Holland's theory is supportive, but that populations used have mostly been students, with the student choice in final year as the criterion against which the former occupational

prediction is measured. Few studies have used the actual occupation entered as criterion, and Super states that "more good studies are needed using behavioural (rather than verbal) criteria" (p.16).

Tests available to pupils in Natal, where interpretation is based on Holland's theory, are the Self Directed Search (Bisschoff, 1987), and the Strong-Campbell Interest Inventory. Super (1983b), states that Holland has "made available to practicing counselors and to counselees instruments that are useful in helping people to do a better matching job than they might on their own" (p.16).

1.5.3. Developmental / Self-concept theory

A developmental perspective, where the career of an individual is seen as inextricably linked with personality development, was formulated initially in the 1950's in the USA. It arose out of growing knowledge about human development, because those in the field of career counselling were "no longer experimentalists with little knowledge of personality theory..." (Super, 1983b, p.23), but had better training in psychology. Theorists in this field have drawn on the developmental theory of Erikson, and shown that "vocational development takes place in a context of development in general" (Osipow, 1976, p.138).

Osipow (1983, p.10), notes the early work of Buehler, as well as that of Ginzberg, Super, Samler, Dudley and Tiedeman; and the influence of client-centred counselling, particularly that of Carl Rogers. Osipow notes that the central theses of these theorists are:

- * "individuals develop more clearly defined self-concepts as they grow older..."
- * "people develop images of the occupational world which they compare with their self-image in trying to make career decisions"

* "the adequacy of the eventual career decision is based on the similarity between an individual's self-concept and the vocational concept of the career eventually chosen" (ibid, p.10).

A leading theorist in this group is D.E. Super. His theory is a composite one, based on principles of development and progressive life stages, self-concept theory in which the individual strives to implement occupational choices which express vocational self-concept, trait-factor notions of differential interests and abilities linked to occupational patterns, and sociological "situational determinants" (Super, 1980, p.289). Super has represented the principles of his theory as the "Life-Career Rainbow" shown below.

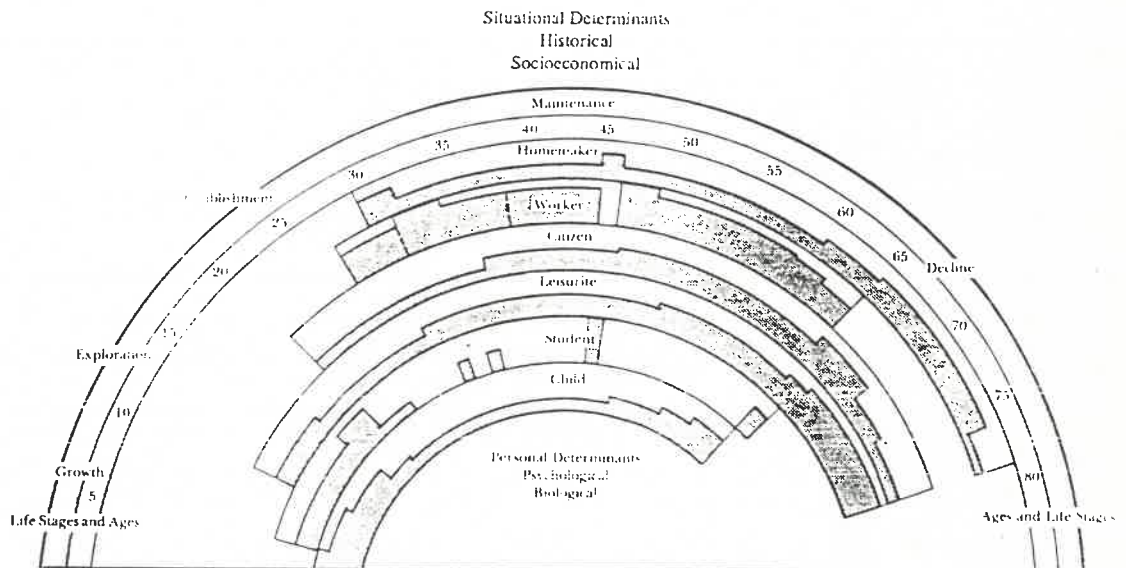


FIGURE 1.2. The Life-Career Rainbow: Six Life Roles in Schematic Life Space. (from Super, 1990, p.212)

The above figure shows the successive life stages experienced by the individual, and the waxing and waning of various roles as life progresses. It also shows the impact of situational determinants from outside, and the personal determinants which impact on development from within. Super addresses the influence of earlier performance on later positions and roles, and states that "decision points occur before and at the time of taking on a new role, of giving up an old role, and of

making significant changes in the nature of an existing role" (ibid, p.291). He also proposes a developmental model of emergent career decision making. Super proposes that the above figure has utility in helping individuals to see "the interactive nature of the variety of roles constituting a career, and showing how self-actualization can be achieved in varying combinations of life roles" (ibid, p.296).

The practical influence of Super's theory is that career counselling cannot be viewed as a "one-off" event, because "attention to career choice as a one-shot decision occurring in adolescence reflects only a segment of significant vocational behaviour in the life of an individual" (Osipow, 1983, p.154). It needs to be an ongoing process as the individual proceeds through the vocational development tasks (approximate ages in parenthesis) of "crystallization (14 to 18), specification (18 to 21), implementation (21 to 24), and stabilization (25 to 35)" (ibid, p.157).

The concept of Career Maturity is intrinsically linked to a developmental approach. Super (1983a) states that "there is good objective evidence as to not only the existence of great individual differences in vocational maturity, but also to its increase with age and its dimensions and components" (p.557). Krumboltz et al. (1979) define career maturity as consisting of "activities, knowledge, and attitudes about occupations, planning, and career decision making that tend to show development over the adolescent years" (p. 581).

Career maturity seems to be determined not only by intelligence and values, but also by a sense of autonomy (internal locus of control), self-esteem, and future perspective which are essential to planning, exploration and the acquisition of career skills and information (Super, 1983, pp.557-558). It is thus important for the counsellor to ask whether the pupil "is mature enough for his or her interest and value scores to have real meaning" and if so, is the pupil

"planful enough to benefit from the review of aptitude, interest and value data..." (ibid). Super contends that "the old matching model asks no such questions, provides no help in answering them even if the counselor asks them" (ibid).

The implication of the above seems to be the importance of the counsellor assessing the career maturity of the counselee. Marcia (in Downing & Dowd, 1988) studied career identity formation and postulated that the counsellor will find four different statuses among counselees:

- * "Identity Achievements define those who have experienced a decision-making period and are pursuing self-chosen occupations and ideological goals;
- * Foreclosures describe those who are committed to an occupation and ideology which have been chosen by their parents and accepted with little question;
- * Identity Diffusions refer to those who have no career goals and do not appear motivated to find any
- * Moratoriums cover those who are currently in an identity crisis at the same time as they are going through the decision-making process." (p.150)

Marcia found no significant intelligence differences among the above status groups.

Measures to evaluate career maturity and career decision-making are available to counsellors, and reference will be made to these in section 5.4.2.

The developmental approach to career counselling is based on the integration of aspects of mainstream developmental and personality theories, and would seem to have great merit. The writer's experience of counselling, and contact with other teacher-counsellors, would seem to indicate that this approach has not been widely applied due to practical difficulties. It would now seem appropriate to discuss the question of the evaluation of career counselling.

1.6. The need for the evaluation of career counselling

In this section, the concept of evaluation research and the status of evaluation research in career counselling in the USA, Britain and South Africa will be discussed.

1.6.1 The concept of evaluation research

The Penguin Dictionary of Psychology (1988), defines evaluation research as an area of applied psychology concerned with the development of procedures for testing the effectiveness of social, educational, therapeutic or other applied programmes. The overall goal of such research is the improvement of the physical and social environment by "the application of scientific procedures to social problems" (Rossi & Freeman, 1989). Judgements of the merit of various programmes are made by using the tools of research to lead to greater accuracy and objectivity. The purposes of such evaluation are to inform policy and to make decisions about the value of a programme - both intrinsic and comparative.

Evaluation research has been used to assess various educational programmes, particularly in the USA. Examples are: "Operation Head Start", streaming of pupils, giftedness programmes, and Special class placement. Lewin (1979), describes the goal of such research: "to determine whether or not the purpose of the programme has been or is being achieved, and what specific events (causes) have what specific effects (results)". The need for such evaluation is to assess cost-effectiveness, as well as to make some form of value judgement based on the principle of the maximum good for the greatest number.

The ideal research design would have both pre- and post-programme measures, with a randomly selected treatment group and an equivalent control group. Watson (1985), comments on studies which have been done in South Africa (see 1.6.2.2.), using a pre- and post-test experimental design. He states that

the samples have been small and select, "thus contributing little towards the understanding of career development in this country" (p.85). Research would thus be far more useful were large enough experimental groups selected across all population groups !

Whilst ideally, evaluation research is a carefully controlled experiment, it is very difficult to implement such research in the real world context. There are a number of issues which have plagued such research, both conceptual and practical.

It is difficult to separate the roles of evaluator and decision-maker. The persons conducting such research often have a vested interest in the programme, or may experience political pressure. Weiss (1972) warns against being a "pawn in intraorganisational power struggles, a means of delaying action or the rallying point of one ideology or another". Cronbach (1983) cites guidelines which stress that the researcher should take the complex scene encountered as given without manipulating, controlling or eliminating situational variables; striving rather to unravel the situation (p.25).

A major practical difficulty is the operationalising of the process and goals, and the selection of criteria. It has been found that to turn theoretical and conceptual processes and goals into practical criteria which may be measured pose major problems. Also, it is difficult to be sure that the results are connected to the programme, and not related to other issues. There are often also ambiguous and unclear goals, and the programme may not remain fixed over the period of study. These issues will be discussed further in section 1.7.

Further difficulties are that such research is seldom planned prior to the implementation of a programme, thus pre-programme measures, the use of a control group, and post-programme measures are often neglected. This was so in the study which

follows, leading to difficulties in drawing conclusions and other methodological problems.

Currently, evaluation seems to be related to decision-making, and Rutman (1984) notes that most projects are short term evaluations of less than three months, even at the expense of scientific rigour. Qualitative methods have also become more acceptable.

1.6.2. The status of evaluation research in career counselling

1.6.2.1. Research in the USA and Britain:

Career counselling is a very well established field in the USA and Britain, and there has been a great deal of research into the development of programmes, including those for school populations. Magee and Pumfrey (1986) state that "one of the most pressing problems of adolescence is the making of educational and career decisions"(p.280). Schools have an important role to play in this decision-making process, and Arnold et al. (1988) point to schools as "one aspect of the local community within which young people experience many of the interactions which influence their sense of self and their career development" (p.83).

Holland et al. (1981) comment on the proliferation of new materials and techniques, but state that these have "not been accompanied by a similar interest in evaluation" (p.281). Fretz (1981) states that "evaluative investigations ...represent ... about 10% of the literature in the entire domain of career psychology" (p.77). In the evaluative literature, there is good support for a combination of group work and individual counselling - group work for "information and motivation and individual counselling for application to the self..." (Super & Hall, 1978, p.338). Thus, Holland et al. (1981) state that the ideal intervention would include :

- * Organized and accessible occupational information

- * Clarification of the client's self-picture and potentials by the use of assessments
- * Rehearsal of career plans and problems in individual or group activities
- * Support from counsellors, groups or peers and
- * Provision of a cognitive structure for the organizing of information about the self and career alternatives (p. 298).

There is support, in the studies and reviews, for direct counsellor contact, but "it is important for careers professionals...to understand the ways in which young people make use of different sources of careers help" (Arnold et al, 1988, p.83). The existing evaluative literature is of a diversity of techniques, methods, personnel and costs, showing mostly small gains. There are relatively few longitudinal studies, even over a short number of years. There is an "increasing recognition that young people's own perceptions of the purposes of careers ...counselling...may be of particular value in planning and implementing programmes" (Cherry & Gear, 1987, p.59).

An account of two other major studies follows: A study of a group of 32 000 high school pupils in the USA, a nationally representative sample, showed how little eleventh graders actually knew about the world of work and that they were given very little help. The researchers found that "56% of the eleventh graders receive little or no help with career planning in discussions with counselors, although 84% say that they can usually or almost always see a counselor when they want to ... students do not ask for the help they want, do not see the schools as a place to receive it, or do not find counselors willing or able to offer the amount or type of help that seems to be required" (Krumboltz et al, 1979, p.579). The above conclusions are alarming.

A similar picture emerged in Britain when the results of a survey of 1 000 schools by the National Association of Careers and Guidance Teachers was published. "It shows that despite more than a decade of rhetoric and exhortation, careers guidance is still the slum area of the school curriculum" (from an article in The Times Educational Supplement, Brownell, 1989, p.28). There are still shortages of skilled personnel, time available for counselling, accommodation and basic administrative facilities.

A survey of the literature underscores the need for "more rigorous evaluations of all forms" of career counselling intervention (Holland et al, 1981, p.299). Cherry & Gear (1987) encourage the evaluation of strategies "in the field, under far from ideal conditions" (p.181). One of the reasons for the paucity of evaluative research is the previously mentioned difficulty in deciding on valid criteria for measurement, a topic for discussion in a later section.

1.6.2.2. Research in South Africa:

The status of evaluative research in South Africa seems to mirror, on a much smaller scale, the position in the USA and Britain. There are some studies which evaluate programmes of different kinds, either immediately after or a few weeks after participation by the subjects. The results of the studies are mixed, with some of the programmes seeming to promote career maturity as measured. It is necessary to differentiate between research done when there has been a group counselling intervention, and that done on individual interventions. The following seven studies were based on group interventions.

Laubscher (1977), wrote a career education programme which focussed on self-awareness, and found that his subjects showed some positive development of vocational maturity, job certainty and personality related to vocational maturity, following the programme.

Bergh (1980), translated Crites' Attitude Scale into Afrikaans, and using a pre- and post-test design on 9 vocationally undecided matric pupils, found that a career counselling programme had a positive effect both on career maturity and decision-making.

Newman (1982), used a pre-post design with both experimental and control groups. Twenty male and female Std 9 Natal pupils participated voluntarily in the experimental group, and the above results were replicated. She thus recommended that counsellors work within a developmental framework. Liesegang (1985), using the same experimental design, developed a programme incorporating self-awareness, opportunity awareness and decision learning, and also found that the career maturity of participants was nurtured.

A study by Skuy et al., (1985) of pupils' perceptions of the Guidance Teacher as a preferred helping agent, showed a third of the respondents rating their teacher as helpful in careers guidance, as against twice as many who selected their parents in this role.

A study by Delpont (1986) focussed on "the effectiveness of the N.E.D. group careers education programme in promoting career maturity in high school pupils", with significant results only at the Std 8 level. Although this study evaluated a programme developed in Natal, the pupils who participated were from the Eastern Cape.

The above studies were circumscribed in terms of wider application because they used only "white" participants. Msimeki (1988), conducted a similar study with black high school pupils and noted some enhancement of career development following the presentation of a career programme.

Of the above research only one study was specifically in Natal. Mention must now be made of a group of studies which

followed a more descriptive route, based on individual measures, which did not evaluate an intervention per se.

Van Vuuren (1975), conducted a diagnostic study comparing individuals experiencing career-choice difficulties with those who were decided. Uncertain pupils were found to be less mature and to have lower self-esteem, with higher anxiety levels, as measured by the tests used.

Van Niekerk (1975), in an empirical investigation into a number of factors which may influence career decision-making in a group of High School boys, found that socio-economic status, parental attitude to education, intelligence and achievement, all have a positive relationship to career aspirations.

Watson (1985), investigated the effects of various individual and environmental variables on the current career development of 600 pupils from the "Coloured" community of the Eastern Cape, and also described their current status with regard to career development.

Taylor (1986), studied individuals experiencing career indecision in the context of a systems approach involving the family of each. Career indecision was found to correspond with separation problems, and the systemic correlates of the indecision were investigated.

Stead (1988), conducted research into the career decisional states of "White" High School pupils, and found correlations with socio-economic status, vocational identity, anxiety level and locus of control. This led to tentative conclusions about career indecisiveness of High School pupils, and a call for more appropriate counselling interventions for those experiencing decisional problems.

The following three studies are evaluations of individual interventions.

The biggest longitudinal study has been the HSRC's Project Talent Survey in which high school pupils were tested from 1965 to 1969 (from their Std 6 to their matric years), and were followed up from 1970 to 1980 "to determine fields of study and study success" (Roos, 1986, p.39). "The results of the investigation indicate that the specific psychological measuring instruments significantly distinguish between broad fields of study and consequently can be used in educational and vocational guidance" (ibid). The tests used were the New South African Group Test (NSAGT), the Senior Aptitude Test (SAT), the Scholastic Proficiency Battery (SPB) and the 19-Field Interest Inventory (19 FII). It must be noted that the subjects had followed university courses, thus the population sampled was limited.

The National Institute for Personnel Research (NIPR) offer career counselling for those in their matric year (as well as for post-matrics). Toerien (1984) refers to four studies of the effectiveness of this service, and conducted an evaluative study of the individual counselling process as conducted in Natal. This study was a pre-post design, with both experimental and control groups; and although he was specifically investigating the addition of a method of reviewing life history to the normal procedure, his results show that the standard procedure followed led to a significant gain in career maturity. These results were replicated in a study by Clarke & Toerien (1986), using a larger sample than Toerien (1984) had used.

The above three studies have been important in informing the study to be described in the following chapters. From the above review, it may be deduced that there has been little research aimed specifically at evaluation of the individual careers counselling process in High Schools, and the value of

the psychometric tests which were available to school counsellors in the mid-1980's in the N.E.D.

The need for evaluation was called for by the N.E.D. Chief Inspector of Education in 1987. He underlined the need for teacher-counsellors as professionals to be accountable for the effectiveness of their task. While acknowledging the difficulties faced by the counsellor when measuring effectiveness, he stressed the need to evaluate the services offered. This was necessitated by attempts to improve cost-effectiveness within the N.E.D., due to financial limitations. He continues " dit is dus nie vergesog om te voorspel dat (voorligtings-) onderwysers in die toekoms in 'n groter mate aangewend sal moet word vir vakonderrig nie. ... Derhalwe sal u daadwerklik bewys moet kan lewer dat die dienste wat u lewer, onmisbaar is" (Reusch, in Brownell, 1989, p.4).

1.7. Issues in measuring the outcome of career counselling

One of the reasons for the lack of research which studies the validity of career counselling intervention is the difficulty determining the dependent variable. Sprinthall (1981) asks: "How do we assess outcome...What kind of change and/or growth do we attempt to measure?" and then comments "...this is one of the most troublesome questions that educational researchers face, as we are almost always limited to currently available measures" (p.489). The questions of validity are often linked to the criterion, the instruments used and to research design.

One of the issues relates to the selection of criteria. Which criteria may be used to validate or invalidate the career counselling process? Should the criteria be manifest, everyday behaviours measured immediately after the intervention, or should the measures be intermediate or ultimate behaviours ?

Krumboltz et al (1979) group criterion measures used during the 1970's in five major categories:

- * "improvements in decision-making skills,
- * increases in 'career maturity',
- * changes in the nature or quality of choices,
- * improvement in employment seeking skills, and
- * improvements in job performance and satisfaction" (p.577).

There has been a tendency in the past to use short-term measures, because these are more easily available. Criteria such as school attendance, compliance, information-seeking behaviour, and grades have been used. Super & Hall, (1978), state "the utility of such criteria has been worth exploring" (p.341). (In the same article, however, they also remark that effective vocational guidance may in fact lead to students making a decision to leave school or to rebel when the subject matter in curricula seems to be irrelevant to 'real life' issues: thus they question the use of the aforementioned criteria as indicators of the success of career counselling).

Some researchers have supported the use of immediate criterion measures, and show that instant criterion measures may have more going for them than merely convenience. Two such arguments follow:

- * Katz (in Oliver, 1979) argues that it is necessary for the researcher to determine whether the skill of decision-making has been acquired, "not whether the skill predicted a long-range criterion such as job success" (p.218). This criterion is, however not easily operationalised.
- * Myers conceptualized career development as a series of choice points and argued "that it is unlikely that short-term career counselling can have much measurable long-term effect, considering the far greater effect each choice actually made will have on subsequent choices" (ibid).

An assumption underlying many careers programmes is that exploration should lead to decisions or a choice. Super & Hall (1978) point to the difficulty of using such criteria: "It has been recognized that 'choices' may still be fantasies, that decisions may be unwise, and that exploration may lead, ... to a decision to postpone choice and to explore further" (p.341). It is thus problematic to use a preference or choice as a criterion of effectiveness.

A further difficulty is the separation of the more formal career counselling process from the informal guidance which may occur through the curriculum and input of subject teachers. A large study in the USA found that "control schools were doing so much informal guidance...that the impact of the formal program and special staff was masked" (Super & Hall, 1978, p.338).

Oliver (1979) discusses the use of 'change' and 'certainty' as possible outcome measures. She concludes "an increase in number of career options might be a positive outcome for clients who are in the exploratory stage of career decision making, while a decrease in career options would be advantageous for clients in a later stage ... higher certainty for an unrealistic career choice might be less desirable than lower certainty for a realistic choice" (p.218). It would thus seem that goals need to be unique for each client bearing in mind individual differences, and differential development of career maturity. Whilst this seems reasonable and fair, such an approach is far from being operationalised, and would be very difficult to evaluate in practical terms.

The collection of long-range criterion data is complicated by both attrition and the effects of other influences. The attrition of subjects leads to sampling difficulties, because it is probable that such attrition is selective. Also, "the longer the time since concluding the counselling, the greater

the probability that factors other than the counseling experience have affected the outcome" (ibid, p.217)

Oliver (1979) goes on to discuss criteria which may be useful, but have been neglected. She suggests determining "the extent to which clients had accomplished their objectives" and cost-benefit analysis (ibid).

The above discussion points to the difficulties in attempting to measure outcome. Sprinthall (1981) notes "we are almost always limited to currently available measures" (p.489), and the writer is aware of the many limitations as she embarks upon the study . With regard to problems with instruments and research design, these will not be discussed at length at this point, because the parameters of the information available, and that which could be accessed determined the course of this study.

It is useful at this point to consider recommendations made by Oliver (1979) and Fretz (1981) with regard to the design of studies of the effectiveness of career interventions.

The table of "Dimensions of clients, treatments and outcomes" used by Fretz, to summarize the parameters which he believes need to be considered when embarking upon evaluative study now follows. Fretz recommends that all studies should "assess and explicitly (a) describe the nature of the interventions that are studied, at least in terms of the three major treatment parameters in Table 1; (b) describe participants on all client attributes in Table 1 that are readily assessable so that the reader may make strong inferences from any differential relationships of client outcomes and a given treatment,...(c) identify the outcomes evaluated as well as describe the measures" (p.86). The above factors will be enumerated in the chapters that follow.

TABLE 1.1

Dimensions of Clients, Treatments, and Outcomes

Client attributes	Treatment parameters	Outcomes
Demographic	Content domain	Career knowledge & skills
Sex	Occupational information	Accuracy of self-knowledge
Race	Self-knowledge	Accuracy of occupational information
Age	Decision skills	Accuracy of job-seeking skills knowledge
Socioeconomic/educational level	Interpersonal context	Planning and goal selection skills
Urban/rural origin	One-to-one counseling	Appropriateness of choices (realism)
Psychological	Group counseling	Range of choices
Intelligence	Self- or computer administered	Career behavior
Cognitive complexity	Degree of structure	Career information seeking
Need for achievement	Highly structured	Relevant academic performance
Locus of control	Semistructured	Seeking initial/new job
Ego strength	Unstructured	Getting initial/new job
Self-confidence		Job ratings
Anxiety		Being promoted
Dependence		Earnings
Defensiveness		Sentiments
Personality type		Attitudes toward choices: certainty, satisfaction, commitment, career salience
Career related		Job satisfaction
Type of undecidedness		Quality of life ratings
Career maturity		Satisfaction with intervention
Attitudes toward choices		Perceived effectiveness of intervention
Career decision style		Effective role functioning
Motivation for treatment		Self-concept adequacy
Expectancies for treatment		Personal adjustment
		Relapses of career problems
		Contributions to community

Oliver (1979) has recommended the use of multiple criteria rather than the use of a single dependent variable, because "career counseling outcomes are multidimensional, and one measure is probably not adequate" (p.223). She also recommends the use of specific rather than global measures. Short-term measures are preferred to longer-term studies due to contaminating effects of other influences. The use of instruments from previous research would also seem to be more effective. The above recommendations will be referred to at the beginning of chapter 3.

CHAPTER TWO

MATRIC CAREER COUNSELLING DURING 1986

In this chapter, it is necessary to describe the career counselling procedure followed by the writer, the psychometric tests used, and the characteristics of the group of matriculants counselled during 1986.

2.1 Career counselling procedure

The career counselling process is part of the Careers Education programme which is introduced initially in Std. 6, and is presented in sections of increasing detail in each successive high school standard. The programme is designed to focus on better understanding both of the self and the world of work, and incorporates information linked to decisions which need to be made at various stages as the pupil progresses through the high school.

Five of the most important aims of the Careers Education programme are laid down by the NED. These are summarised as follows:

- * "To make pupils aware of the need for a broader view of the world of work...
- * ... to make pupils aware of the need to see job selection as a developmental process and not merely an event...
- * To examine cultural conventions such as the 'one life one career' assumption which can no longer be supported by available statistics on job mobility...
- * To develop the self concept of pupils through greater self understanding...
- * To help adolescents to be able to communicate in an informed and articulate manner on the topic of careers choice ..." (From N.E.D., 1984, Careers education preamble)

The topics covered in group guidance lessons by the teacher-counsellor following the scheme of work recommended are as follows:

- Std 6: Introduction to careers education, the need to work, the place of work in our lives, career fields and groupings.
- Std 7: Subjects and subject grades linked to career requirements, early school leaving, further education and training.
- Std 8: The process of career planning, classification of occupations according to interests, sources of career information, careers in the future.
- Std 9: Evaluation of job advertisements, career indecision, investigation of adult career experiences, interpretation of the 19 Field Interest Test, Senior Aptitude Test and Jung Personality Questionnaire.
- Std 10 Job applications - the C.V. and letter writing, preparation for the job interview, coping with unemployment, rights and obligations in the world of work.

The pupil group who are the focus of this study matriculated in 1986, and since the above programme was released to the schools in 1984, the pupil group were exposed to the Stds 8, 9, and 10 topics enumerated above.

It is important to note here that the description and discussion in the remainder of this chapter focuses only on the individual counselling part of the Careers Education programme as described above. This individual counselling aimed firstly to provide information which could aid self understanding (the fourth of the aims listed above). It also provided an opportunity for communication about careers choice on a one - to - one basis, and the counsellor would ideally strive to help the pupil consider career development and other career alternatives (the second and fifth aims listed above).

The individual careers counselling programme started towards the end of the Std 9 year, once the psychometric tests chosen for the group had been administered. Pupils were invited to make individual appointments with the counsellor. The focus of the programme, however, was in the first term of the matric year, when every matriculant was encouraged to have at least one session with the counsellor.

Within the individual interview, the pupil's tests results were discussed and aspirations and plans were linked to these. The focus was on stages of the decision-making process, and tailored to meet the particular needs of the pupil concerned. Each pupil was given a letter to take home to his/her parents at the end of the interview, encouraging the parents to make contact with the counsellor should they so desire (see Appendix A). The pupil was also encouraged to make further appointments as the need arose. Of the 106 pupils in matric during 1986, all took advantage of the opportunity to have at least one individual counselling session, and a number were seen more than once. The parents of 22 of the pupils met with the teacher-counsellor formally, and there were some informal discussions.

Before the individual counselling session, the majority of the pupils had completed the New South African Group Test (NSAGT), the Senior Aptitude Test (SAT) and the 19 Field Interest Inventory (19 FII). Most had also completed the Crowley Occupational Interest Blank during their Std 8 year. Information from these tests was used to help with the decision-making process. If the counsellor felt it necessary, there was the possibility of the pupils doing two further tests: the Kodus Interest Questionnaire and the Jung Personality Questionnaire (JPQ). The tests mentioned above will be discussed in the following section.

A problem encountered when counselling the 1986 matrics, was that some had not completed the 19FII during their Std 9 year,

because they had had group guidance lessons with a counsellor other than the writer, and the interest testing had been omitted from the programme. Such pupils were often given the Kodus to do, to give some indication of their interest profile.

The procedure described above applies to a large number of Natal High Schools, although it was often limited by the teacher counsellor having little time available for individual counselling. The writer found that a number of school counsellors had discontinued using the SAT and 19FII because they questioned the utility of these tests; however it was not departmental policy to omit these tests.

A table showing the pupil numbers linked to the test groupings used now follows. Each pupil had done the NSAGT earlier in their school career, so although the score would have been referred to during the counselling process, it is not listed in each test grouping given below.

TABLE 2.1. Tests administered

<u>TEST GROUP</u>	<u>NO. OF PUPILS</u>
1. SAT, 19FII, JPQ, Kodus, Crowley	7
2. SAT, 19FII, JPQ, Crowley	32
3. SAT, 19FII, Kodus, Crowley	18
4. SAT, 19FII, Kodus	4
5. SAT, 19FII, JPQ	5
6. SAT, 19FII, JPQ, Kodus	4
7. SAT, JPQ, Kodus, Crowley	5
8. SAT, JPQ, Crowley	14
9. SAT, 19FII	1
10. SAT	1
11. SAT, JPQ, Kodus	2
12. SAT, JPQ	1
13. 19FII, JPQ, Crowley	1
14. JPQ, Kodus	1
15. SAT, Crowley	1
16. 19FII, JPQ, Crowley	1
	<u>97</u>
<u>FREQUENCY OF EACH TEST:</u>	
SAT	95
19FII	73
JPQ	51
Kodus	34
Crowley	79

A survey of the above table shows the reality of the situation facing a teacher counsellor. Although it would be ideal to have the results of the same battery of tests for each pupil, in the school situation this is difficult to achieve. Pupil absenteeism and lack of motivation, the disruptions which occur in the normal school day, the possibility of the testing programme not being completed during the Std.9 year and pupil movement from one school to another all complicate the process. Doubtless, there will be a range, across N.E.D. high schools, in the quantity and completeness of test scores and other data collected on each schools' pupils. Teacher-counsellors have regular contact with each other in an area, and on the basis of discussions held with other counsellors, the writer believes that the quantity and quality of data of this 1986 group of pupils is fairly typical. This also

highlights one of the difficulties of follow-up research referred to in section 1.6.1.

It should also be noted here, that the total number of pupils for whom information was available was 97, of the 106 matriculants of 1986. At the time of the study, it was not possible to access information about the remaining 9 pupils.

It is difficult to spell out exactly how the teacher-counsellor reaches a decision about a selection of careers which may be presented to the pupil. It is probable that the IQ test results available are first consulted to ascertain potential and likelihood of success in tertiary education. The results of the other tests used are inspected, and obvious correlations are noted. This information is then linked to knowledge of the pupil (both subjective, and objective eg. current and past achievement at school), the information supplied by the pupil and the counsellor's knowledge of the availability of study and/or occupational opportunities. The counsellor would then make suggestions from the information obtained. It is obvious then, that counsellor experience in test interpretation, knowledge of the fields of study and work, and ability to make clinical judgements about the pupil in question, are all vital to the process of making suggestions for further investigation by the pupil.

2.2 The psychometric tests used in career counselling

A sample profile showing the information given by each of the tests (excluding the NSAGT) may be found in Appendix B. Brown (1990) discusses the issue of the predictive validity of psychometric tests, and cites findings that would seem to indicate that " 'the resulting prediction of individual success in specific occupations has been discouragingly imprecise' " (Herr & Cramer in Brown, 1990, p.17). However, Brown states that "the best question to ask is which test maximises prediction" (ibid, p.17). The reader is referred to

the manuals of the tests described below for various coefficients related to test validity. One of the difficulties in determining validity is the problematic nature of the criterion (Van der Westhuizen, 1979, p.148), and Brown (1990) warns that "trait measures cannot account for more than 36 percent of the variance associated with various criteria..." (p.19).

2.2.1 The New South African Group Test

It is required that each pupil completes a group intelligence test in his/her Std.2, Std.5 and Std.7 years at school. The test referred to most in the senior secondary phase is the NSAGT Senior test, done in Std. 7. Van der Westhuizen (1979) states "The main objective of a group intelligence scale is to obtain an impression of a pupil's general intellectual ability in the most economical and objective manner. Test intelligence is based on a sample of intellectual skills which have developed under the influence of the environment until the moment of testing" (p.74). It is beyond the scope of this dissertation to discuss intelligence testing at any length; my brief discussion below will describe the scores obtained from the test, and its utility as part of the career counselling process.

The NSAGT measures certain aspects of intellectual development. It has been found that the factor which all six subtests load most heavily upon is reasoning (ibid p.76). The tests consists of 3 verbal and 3 non-verbal subtests, and the scores obtained lead respectively to a verbal, non-verbal and total IQ score. The NSAGT is a speed and power test, and it is thus possible for a pupil to obtain a lower score than his/her achievement would indicate due to the speed factor. The NSAGT also presumes a normal reading ability, therefore pupils experiencing any sort of reading difficulty will also be disadvantaged. Pupil motivation is another complicating factor. It is thus necessary to interpret the tests results with great caution.

The scores of the NSAGT are used to give some indication of the pupil's potential to achieve in some form of tertiary training. Whilst it is difficult to come to conclusions based solely on the test scores, the scores used in combination with scores on the SAT can indicate whether the pupil fits into the above average, average or below average category. Generally it has been found that pupils need to score in the above average category to achieve at university, and in the average to above average categories to achieve in other tertiary training colleges. Roos (1986) found that particularly the non-verbal test score was useful to distinguish between broad fields of study and "could be used profitably in ... vocational guidance" (p.45).

2.2.2 The Senior Aptitude Test

The Senior Aptitude test was first used in 1969, and released for general use in 1971. The manual (Fouche & Verwey, 1978) describes aptitude as "the potential which a person has and which enables him to attain a specific level of ability with a given amount of training and/or practice " (p.3). The developers of the test believe that, combined with such characteristics as motivation, interest, attitude, and training and instruction, aptitudes determine the "level of skill and proficiency which may be reached" (ibid).

The SAT battery consists of 12 subtests, of which the first 10 were used for testing the pupils by the writer. The results of the subtests are converted to stanine scores, and are best used in various groupings, which may then "more readily and more meaningfully be related to specific occupations than is possible using the tests individually" (van der Westhuizen, 1979, p.87). The grouping of the SAT subtests is shown below:

TABLE 2.2 Grouping of the Senior Aptitude Test (Fouche & Verwey, 1978, p.51)

1.VERBAL ABILITY
1.Verbal Comprehension
3.Disguised words
9.Memory (Paragraph)
2.NUMERICAL ABILITY
2.Calculations
4.Comparison
3.VISUAL-SPATIAL REASONING
5.Pattern Completion
6.Figure Series
7.Spatial 2D
8.Spatial 3D
4.CLERICAL APTITUDE
4.Comparison
12.Writing speed
5.MEMORY
9.Memory (Paragraph)
10.Memory (Symbols)
6.MOTOR SKILL
11.Co-ordination
12.Writing Speed

The Senior Aptitude Test has been found to have some predictive validity for examination success (van der Westhuizen, 1979, p.89), but the ability of the SAT to predict occupational achievement has not yet been determined. Roos (1986) found that the SAT was able to distinguish between broad fields of study, and again found the non-verbal tests to be better predictors. The SAT was used by the writer to broadly indicate groups of occupations, but was not used in isolation.

2.2.3. 19 Field Interest Inventory

A good deal of research has been devoted to the development and interpretation of various interest tests. Roos (1986) cites a conclusion reached by Berdie: "... vocational interest tests differentiate better among curricular groups than do other kinds of tests ... Differential educational and vocational distribution at college level, as shown by attainment of college degrees, is much more dependent upon

motivations and interests than upon special abilities" (p.44). Roos found in his study that the 19FII was a more successful predictor than the cognitive tests used (ibid).

The 19FII was developed to measure the career interests of high school pupils on 19 broad interest scales. The pupil grades activities according to four categories i.e. Strong Dislike (D), Slight Dislike (d), Slight Liking (l) and Strong Liking (L). The raw scores are converted into stanines which are norm-based. The degree of discrimination between various fields, and the level of interest may be used to determine developmental maturity of the pupil, and may also indicate his/her needs and values. The profile thus obtained is used to lead to interpretation. A disadvantage of the test is that profiles of intelligent pupils may have a number of stanines above 7; or if many scores are above 7 and this does not correlate with the pupil's achievement, it may indicate a pupil defending "against feelings of personal inadequacy" (Congdon & Jervis, in van der Westhuizen, 1979, p.144). Conversely, profiles of pupils who are less intelligent, or who have developed few occupational interests may be very 'flat'.

There are an additional two scales, viz. Active-Passive (a measure of the person's interest in working actively in various fields) and Work-Hobby. Scores indicating the Active and Work direction on these two scales indicate a pupil who is realistic and ready for a career choice, and scores in the Passive and Hobby direction indicate a pupil not yet ready for commitment to a choice or occupation; thus these scores may be an indication of the pupil's readiness to make a career decision. This measure will be referred to in the study, as a very rough indication of orientation to work.

It has been found that both high and low scores need to be taken into account, and that the grouping of fields should be considered. The manual, however, gives very little indication

of how groupings should be done, and it is difficult for an inexperienced school counsellor to interpret the 19FII well - it appears superficial and simple when only individual fields are considered, and having 19 fields becomes unwieldy. It would appear that the 19FII would be easier to interpret by grouping the fields in some way, (as the SAT may be grouped - see Table 2.2).

2.2.4. The Jung Personality Questionnaire

The JPQ was first released for use by the HSRC in 1983, and the writer was asked to use it on an experimental basis during 1986, to comment on its utility in the school situation. It was therefore not widely used in the N.E.D. High schools at the time, and was administered as the need arose with the group of pupils targeted by this study. The writer was thus inexperienced in its usage at the time.

The questionnaire was constructed to categorise the individual's personality structure according to Jung's basic typology. It is noted in the manual that this may be somewhat superficial and the purpose of the test is to help with vocational guidance, and not for use for personality analysis (du Toit, 1983, p.5).

The results of the test categorise the person on the following continua:

Extraversion	-----	Introversion
Thinking	-----	Feeling
Sensation	-----	Intuition
Judgement	-----	Perception

The fourth scale is used as an auxiliary scale, whilst the first three scales are combined to derive 8 distinct personality types. In the manual, a list of vocations is given "which seem to be related to each personality type" (see Appendix). Du Toit states that these have been supported by research overseas, but warns "this classification has not yet been verified in South Africa" (ibid). Du Toit notes that the

task of vocational counsellors has been difficult in South Africa, and anticipates that the use of the JPQ "together with an aptitude test and an interest inventory will considerably facilitate the task of guidance counsellors" (ibid).

2.2.5. Kodus Interest Questionnaire

This questionnaire was also supplied to the writer to use during 1986 on an experimental basis. It was developed for use by the Education Department of the Cape Province, and is based on the Kuder Preference Record - Vocational. The questionnaire provides "relatively independent interest categories from which inferences could be made about vocational choices" (Lemke & Wiersma, 1976, p.217).

Once the questionnaire has been scored, scores are computed to become percentiles, and a profile is then drawn, with interests divided into 12 categories. This questionnaire is easier to interpret than the 19FII, and it was especially useful for those pupils who had not completed the 19FII during their Std.9 year.

2.2.6. Crowley Occupational Interests Blank (COIB)

This was completed by the majority of the pupils during their Std.8 year. Although the time lapse from Std.8 to Matric would seem to be too long, it has been asserted by Super that many interests are manifest at approximately age 15 (van der Westhuizen, 1979, 141), and the test has been included in this study.

The COIB was first published in 1970, and has been used mainly in schools in the U.K. Interests are divided into five categories namely, active/outdoor, office, social, practical and artistic. This is a relatively simple system, and was useful for rough screening to launch into preliminary investigation of occupations. Kline, in Buros (1978) states that it is "envisaged not simply as a test for individual guidance but as a basis for group discussion..." (p. 1000).

It also provides information related to the sources of job satisfaction, leading to a grading for the categories financial gain, stability, co-operation, working conditions and interest. Both sections of the COIB are multiple choice and ipsatively scored.

Consideration of the information provided in the above section leads one to the conclusion that a number of measures were available to teacher-counsellors. Whilst this must be acknowledged, it must be remembered that there was, at the time of the writer using the tests, a dearth of validation studies in the South African context. The study by Roos (1986) had not been published, and there were only some references to validation of the COIB in Britain (Buros, 1978). In addition to an evaluation of the career counselling system in general, it seemed, to the writer, that some form of validation of these tests was necessary, since a great deal of time was taken up with their administration, marking and interpretation. The testing exercise may be fruitless should the tests not be good predictors of either activity subsequently engaged in, or success. The writer would contest the view of Van der Merwe (in Brownell, 1989) who states: "I test my pupils because they want to be tested and because parents expect test results" (p.31). The writer feels that the tests need further validation and some proof of their utility is necessary.

2.3. Characteristics of the 1986 matriculants

The group targeted by the study which follows was drawn from the group of pupils who wrote the matriculation examination at a co-educational N.E.D. High school at the end of 1986. The average age of the whole group was 17,04 years on 1 February 1986.

105 pupils were involved, 79 were female and 26 were male (ie. 75,2% and 24,8% respectively). This distribution of female to

male is not typical for the province, "an equal proportion of male and female pupils enter the Senior Certificate examination ... (and obtain university entrance passes)" (Clarke & Toerien, 1986, p.13). The reason for this discrepancy between males and females in this co-educational school was that it was a relatively new school, and drawing from an advantaged community, the parents were able to select other more established schools for their sons to attend.

The pupils were generally from economically and educationally advantaged backgrounds. The school is situated in a relatively affluent urban area, and an overview of parental occupation as an index of socio-economic level indicates many in business and professional occupations. The socio-economic level and female : male ratio (3:1) have implications for the generalisation of results to the whole N.E.D. schoolgoing community.

The matriculation results at the end of 1986 showed that 104 of the 105 pupils passed, with 10 attaining A aggregates and 11 B aggregates. Of the pupils who were eligible for matriculation exemption, 76% were successful. These figures indicate a group with good academic potential, and the relatively low average age shows that very few had repeated a standard during their school career.

The writer chose to target this particular group for the following reasons:

- * She had had contact with the majority of the group from their Std. 6 year, and felt that a good level of rapport had been established;
- * The group had been exposed to three years of the N.E.D. Career Education programme;
- * She had counselled matric pupils for two years prior to 1986, thus felt more confident of her abilities with this group;

* The testing programme done with this group was relatively comprehensive.

2.4 Comments on the individual career counselling procedure

The procedure described above would fit the trait-factor model described in section 1.5.1., and by Super (1983a) as the "Matching Model ... in which the assessing counselors start by asking themselves and their data the question: 'At what level can this person best function, and in what field will he or she be most likely to find satisfaction?'" (p.555) In this model, when a person presents for counselling, the counsellor consults existing data which may be on file, and an assessment of the need for additional data is made. Further assessment may then follow, as well as possible consultation with teachers "to be sure of the counselee's ability level and field of interest" (ibid, p.556).

There are a number of issues regarding the career counselling procedure described above which merit discussion. These include the time spent on test administration and individual career counselling, the neglect of developmental status with regard to career maturity, the training of teacher-counsellors and the need for evaluation of career counselling.

2.4.1 Time spent on career counselling

Teacher-counsellors often question the validity of the work they do in career counselling. The administration, marking and interpretation of the tests listed above takes a great deal of time, and a single interview with each pupil is also time consuming, (certain pupils will need more than one interview, and there are also parent interviews).

The current study's target group would have required a minimum of 105 timetabled periods for individual counselling during the end of 1985 and the beginning of 1986, and a further estimated 25 periods for test marking and interpretation. The writer had approximately 14 periods a week available for

individual work, and had this been the only individual work required of her, may have completed the work by the end of March, 1986. This was however, impossible, because the work of the teacher-counsellor is many-faceted, and there was individual counselling work to be done with the other four standards in the school. Had the career counselling been the only focus, she would have been singling out about 12% of the school population for special attention, and counselling of pupils with learning, emotional and social problems would have been neglected. The individual counselling periods allocated are also used for meetings with the principal and various staff, as well as for administration and liaison with other agencies. Crisis intervention also makes demands upon this time. It was therefore necessary to interview the matriculants during lunchtimes and after school.

The situation described above is typical of that facing many teacher-counsellors, and with much less time available for individual counselling currently, compared to previous years, many are questioning the validity of career counselling in the school situation.

There are also many more demands made of the teacher-counsellor for individual counselling in the present socio-political milieu. "White" South Africa has the highest divorce rate in the world, and stressful home situations lead to many adolescents seeking support and help.

2.4.2 Developmental maturity and career counselling

Over the past three decades, and increasing amount of work and research in the field of Careers Counselling has been devoted to the concept of 'career maturity' (see section 1.5.3.). This seems to be an aspect which has been neglected in more formal assessment related to the individual career counselling procedures described above. Although the N.E.D. Careers Education programme follows a developmental process, and the concept of developing career maturity is embedded in this (see

p.39), there is little measurement of or reference to this important dimension during individual counselling. Some teacher-counsellors may bear this in mind during individual sessions, but the only rough guide to this is the Work-Hobby and Active-Passive scales of the 19FII referred to in section 2.2.3.

The teacher-counsellor strives to help the pupil come to some form of career decision because of the realities of the situation in which both s/he and the pupil find themselves. The great majority of matriculants' parents are not in the position to be able to afford a post-matric year at one of the private schools, and many cannot afford to spend a year in a tertiary institution which does not lead to a qualification; thus those who are undecided or lacking in career maturity need to make some form of decision.

There is also pressure from many parents who believe that the answer to their sons/daughters indecision lies in tests which may be administered (or in the teacher-counsellor waving the proverbial 'magic wand'!) A large number of matriculants thus make decisions before they are developmentally ready for them, and Krumboltz et al. (1979) state that "the pressures that are put on young people to force early decisions may cause many of them to assume that their indecision is the result of some personal inadequacy on their part" (p.578).

Consideration of the above information has led to the writer believing that there is the need for teacher-counsellors to have an objective measure of career maturity as a guide in the counselling process. Instruments have been developed for this purpose, including the Career Maturity Inventory (CMI) developed by Crites, and the Career Development Inventory (CDI) of Super et al. (Krumboltz et al., 1979, p.581). It has been shown that "students who are vocationally undecided tend to have lower academic achievement, be more anxiety prone, and have lower self-esteem; however, different types of undecided

students may have need for different types of ...treatment" (ibid, p.578). The teacher-counsellor needs to have some objective measure of career maturity and decisional status.

2.4.3 Training of teachers in career counselling

Some teacher-counsellors have experienced a few weeks training in career counselling during their one-year H.D.E. Counselling method course. The model used tends to be the 'matching model' referred to above, and although most teacher-counsellors are competent test-administrators, needing to be accredited by the N.E.D. School Psychological Services, their interpretive skills may be limited by the paucity of information given in the test manuals of the HSRC tests and other available texts.

At the time the writer was a teacher-counsellor, she and a number of her colleagues had not been trained on an H.D.E. method course. Such teacher-counsellors were thus even more dependent on the information in test manuals and texts, and although brief in-service courses were helpful, there was a general feeling of working in the field with too little training and background.

2.4.4. The need for the evaluation of school career counselling

It is the responsibility of those in the helping professions to objectively evaluate the service they offer, but as mentioned previously, such evaluation is plagued with difficulty.

Delpont (1986) evaluated parts of the group Careers Education programme (briefly described at the beginning of this chapter), and a study focussing on the individual career counselling programme which has been described in this chapter would be informative. The need for teacher-counsellors to evaluate their work has been underlined by Brownell (1989), because educational staff-cuts threaten the position of teacher-counsellors in Natal High Schools.

This chapter has described and contextualised the individual counselling of the 1986 matriculants within the broader Careers Education Programme. Although the broader programme would seem to follow the Developmental model (see the aims of the model in section 2.1.), it was noted in 2.4. that the individual counselling procedure fitted the trait-factor model. The tests administered have been described, and combinations of tests used are listed. The chapter concludes with comments about the individual career counselling procedure.

CHAPTER THREE

PROCEDURE OF THIS STUDY

The present study is an attempt to evaluate one aspect of the work of the teacher-counsellor. It is limited in its scope, but it is hoped that others will also be encouraged to evaluate the work that they do, in order to provide as effective a service as possible with the resources and time available.

Consideration of Fretz's (1981) recommendations for parameters to be enumerated when embarking on an evaluative study (see Table 1.1) reveals the following about the study:

- * Demographic client attributes are available, but due to the lack of "before" measures, certain psychological and career related attributes (eg. level of career maturity) are not;
- * The treatment consisted of a combination of measures to enhance self-knowledge, provide occupational information and facilitate decision skills;
- * The treatment assessed is mainly the one-to-one counselling, but it is not possible to separate out the group counselling effects;
- * It is hoped that the study which follows will assess the outcomes of the process, both in terms of choices made, occupational and training success, attitudes to and satisfaction with choices made.

3.1. Aims of the study

The overall aim of the study was to evaluate the outcome of individual career counselling in a Natal Education Department High School, by using a follow-up method. This evaluation of an aspect of the work of a teacher-counsellor was to gain an indication of the predictive effectiveness of the tests used,

and to measure, to a limited extent, the influences which impacted on individual career decision-making.

The necessity of evaluating the work of the teacher-counsellor was referred to in section 1.3. This is part of professional responsibility, both to the pupils counselled and to employers. The writer is aware that an evaluation of one's own work creates some difficulty, that the level of skill and personality of the counsellor will confound the results, and because a single school population is involved. It was, however, not possible to conduct a larger survey, sampling other schools and counsellors, due to time and access limitations. A larger cross-section would have led to other sources of heterogeneity to contend with in the data analysis, but would seem important for future research (see Chapter 5).

Cronbach (1983) raises the following issues with regard to evaluative studies:

- * the central purpose of evaluation is to attempt "to improve a program or a kind of service by developing a clear picture of its operations and the fate of its clients" (p.2);
- * they are helpful in decision-making with regard to programmes;
- * innumerable choices with regard to research design need to be made;
- * ideal conditions for research are very rare;
- * information relating to evaluations of a programme is useful to the policy-shaping community. "Persons who play roles in approving programs or in advocating alternatives, as well as those who carry out program operations are part of this community" (p.6);
- * information which might have been overlooked or wrongly perceived may be communicated;
- * the starting point may be a single definite question eg. "Is the program achieving its goals?" or "Does the program have an effect?" (p.12).

With reference to the above, the overall purpose of the current study is a modest attempt to assess the effectiveness of individual careers counselling by a single teacher-counsellor. It is hoped that a clear picture of the operations will be developed, and that the results of the study will, in a very modest way, inform both teacher-counsellors in the field, and those attempting future similar evaluative studies. It is acknowledged that conditions for research were far from ideal, and choices as to what should be investigated had to be made.

3.1.1. Objective and subjective criteria

The reader is referred back to the recommendations of Oliver (1979), with regard to the design of studies of the effectiveness of career interventions, referred to in section 1.7. The criteria chosen in the study were both objective and subjective. Objective criteria used were: current study direction/occupation, matric points earned, and a measure of the respondents' success in his/her chosen field:

Since the method of career counselling used was within the trait-factor model (described in 1.5.1.), testing procedures were an important factor. An objective measure then, was an attempt to match current study directions, or occupations, with test results used as the basis of the counselling procedure. The aim of this was to assess which of the tests used maximised prediction (see section 2.2.).

Further measures were the comparison of matric points earned with Senior Aptitude Test results, and a comparison of the index of success with the Active-Passive and Work-Hobby scales of the 19FII.

Subjective criteria were respondents' ratings of the influence of others (including the teacher-counsellor), the influence of various examination results, and the level of satisfaction they were currently experiencing in their present occupation.

3.2 Research design

The research design was a retrospective follow-up study, using a questionnaire to gather the required information. The study covers a period of between three and four years from the time of the counselling intervention, which would seem to be a longer period than that recommended by Oliver (1979).

Cronbach (1983) comments that evaluation which was not planned before a programme was implemented will have more inherent difficulties, and that the evaluator "may recognise a large number of questions, but cannot hope to answer them all" (p.7). He also notes that "designing an evaluation is a continuing process. What variables deserve close attention will be discovered as the fieldwork proceeds" (p.7). Such a research design falls more into what Cronbach (1983) terms the 'Humanistic Ideal' rather than the 'Scientific Ideal'. In the 'Humanistic Ideal' an evaluator studies a programme "already in place ... assignments (of subjects) are not made for the sake of research" (p.25). He then goes on to quote work by Hamilton (in Cronbach, 1983): "'The researcher ... makes no attempt to manipulate, control, or eliminate situational variables, but takes as given the complex scene he encounters...'" (p.25). Cronbach concludes the section with the comment of Gilbert, Mosteller and Tukey (in Cronbach, 1983): "'we have an obligation to do as well as we may with the data we have'" (p.30).

It was decided that a questionnaire, sent to as many of the 1986 matrices as possible, would be the most best way of obtaining information about current activity, degree of success thus far, and ratings of satisfaction and perceived influences upon decision-making. Oliver (1979) recommends the use of instruments which have proved effective in previous research, rather than the construction of new measures. It was fortunate that Clarke & Toerien (1986) had conducted a similar follow-up study of the NIPR vocational counselling service in

Natal, and had constructed a questionnaire which they found useful.

This specific questionnaire was chosen because it had been constructed to assess similar questions in a similar age group. Toerien was approached for permission to use this measure, and granted it.

The first four sections of the questionnaire are very similar to the one mentioned above, but the sections "Influences upon your career decision making" and "General" were designed for the current study, (see Appendix C for copy of questionnaire).

Before embarking upon the study, permission from the Director of Education was required, because records of the N.E.D. High school in question would be used. This permission was granted on condition that parental or pupil permission (depending on pupil age) was gained for access to the pupil's confidential file. It was thus necessary to enclose a covering letter and permission slip with the questionnaire when posted (see Appendix C).

Questionnaires were sent to 80 of the target group of 106, during the first part of 1989. It was not possible to send to the whole group because addresses had changed and forwarding addresses were not available. Of these 80, 49 questionnaires were returned, some through the post and some by hand due to personal contact with the respondents. Following the posting of questionnaires, telephonic contact with a number of the pupils was made to encourage a return, and a reunion of 1986 matrics was arranged, partially to facilitate a re-test of the 19FII and to collect further questionnaires.

3.3 The Questionnaire

Analysis of the biographical and scholastic detail follows, along with an attempt to establish whether there are

differences between those who returned questionnaires and those who did not (this was, however, limited by not having the files of the non-respondents available for use, due to the ethical constraints of requiring permission for access to the files). The results may thus be contaminated by the fact that the 49 respondents may have had a more positive view of the enterprise ie. the 'volunteer effect'.

3.3.1. Biographical and scholastic details

The average age of the respondents on 1 February 1989 was 20,05 years (i.e. 3 years after their career counselling). The average age of those who did not reply was 20,04 years - thus there was no significant difference in average age between the groups.

39 of the 49 respondents were female (i.e. 79%). This is relatively close to the 75,2% of that matric year who were female. The small number of males may also not be such a great disadvantage to this study, because a number of the males would have done their two year military service, a complicating factor because this has an influence on career aspirations and choices.

Figure 3.1 gives an indication of the socio-economic level of the respondents by considering the parents' occupations. It is noteworthy that 30,6% of the mothers are Housewives (ie. 69,4% of mothers were working). Clarke & Toerien (1986) cite a study which showed that 43% of women in South Africa worked. The discrepancy shows an increased number of women at this socio-economic level working, which will impact on the attitudes of the respondents to women having careers. The missing information for occupations of fathers mostly related to respondents who were from families who had experienced divorce, and had lived with their mothers. 9 of the respondents lived in such single parent families (i.e. 18,3%).

n = 49

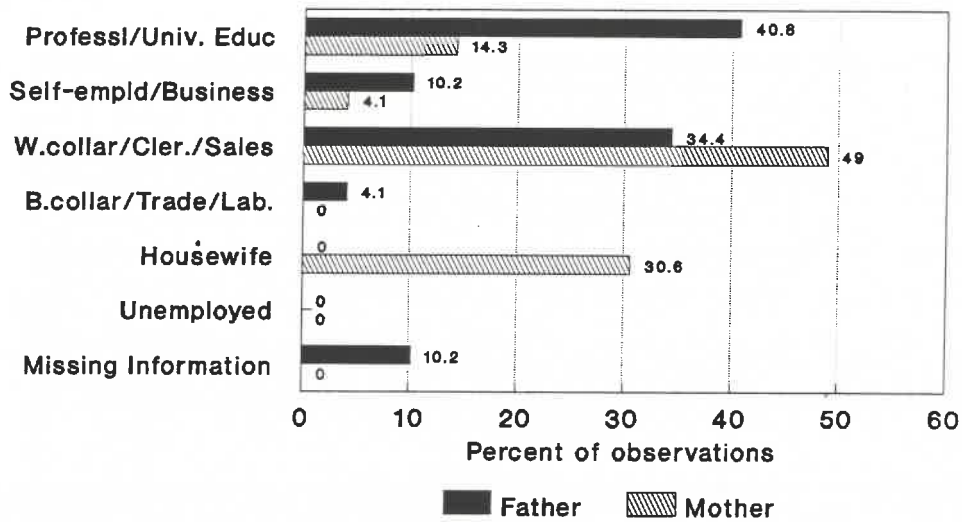


FIGURE 3.1 Parents' occupations

Of the 49 respondents, 39 had obtained a matriculation exemption (79,6%), i.e. a university entrance pass. This may be contrasted to 29 exemption passes of the remaining 57 non-respondents (50,9%).

Because an exemption is no longer sufficient for entrance to university, a calculation of the number of points obtained by each pupil, following the points system which was in operation for the University of Natal at the beginning of 1987, was made. The points are as follows:

TABLE 3.1. Points system

Symbol	Higher grade	Standard grade
A	8	5
B	7	4
C	6	3
D	5	2
E	4	1
F	1	0

The symbol for each subject is allocated points, and the total for six subjects is then calculated.

The mean of the points was 30,3, with the highest being 44, and the lowest being 6. If the cut-off for university entrance is taken at 28 points, of the 49 respondents, 31 could have qualified for university admission. The mean points for non-respondents was 23, with a range between 45 and 5. The discrepancy between the groups according to points may be due to more of the non-respondents being employed and having moved away from the city, leading to them being less accessible to the writer.

It was decided that the calculation of the matric points scored would be a useful criterion measure, because it is an easy numerical way to show achievement, and counselling is also directed at achievement. The points scored could be compared in particular to the SAT test results, a measure of aptitude.

3.3.2. Comments about the group of respondents

Consideration of the above information shows that the group studied were relatively homogeneous with regard to biographical and scholastic details.

The predominance of women in the study may also lead to interesting results. In the literature, there is reference to male sexual bias of interest inventories (Slaney, 1984, p.351), and the only similar evaluative study done in South Africa, (Roos, 1986), had only male subjects. Slaney (1984) also refers to "the considerable general concern for the career development of women" (p.351).

Downing & Dowd (1988) state that "research on demographic variables has not shown significant factors causing career indecision, with the exception of differences between the

sexes" (p.147). Although sex differences have not been specifically targeted by this study, any differences in responses between the sexes would be of interest. Studies in Britain and the USA have shown that there are significant differences between the sexes with regard to careers, and selection may be limited by sex-role factors. These factors may affect the degree by which the results may be generalised.

3.3.3. Further information requested from respondents

Details of current study direction / occupation, occupation the previous year and plans for the following year were requested. If the respondent had changed course / direction, they were asked for reasons for this. This information would then be compared to their plans during their matric year, to determine whether information generated in the counselling was valid.

To categorise the occupational information, two methods were used. The first was to group the activity they were engaged in during 1989. The following grouping was used:

TABLE 3.2. Categories of Occupational information

1.	Employed
2.	In army
3.	Student
4.	Unemployed
5.	Employed and student

The second method was to categorise their field of activity, as well as the fields they were considering during their matric year, in the same way, for ease of comparison. Because the number of respondents was relatively small (n=49), and statistical analyses are more meaningful if there are not too many categories, the writer looked for a system which would be useful. Consideration of the test results at hand, showed that both the 19FII and Kodus Interest Questionnaire have too many categories, and no indication of grouping of these, to

lead to occupational fields, is given for either. The JPQ offered an 8-way categorisation of occupations, but the writer was hesitant to use this due to limited validation studies. The COIB offers a 5-way categorisation, but this seemed too simplistic. A decision was thus taken to use the system developed by Roos (1986).

Roos had used 8 categories viz:

TABLE 3.3. Groups used by Roos (1986)

- | |
|---|
| <ol style="list-style-type: none">1. Applied Sciences2. Pure Sciences3. Applied Social Sciences4. Pure Social Sciences/ Arts5. Engineering6. Medical, veterinary7. Commerce & Administration8. Law |
|---|

(p.40)

It was decided that with the small size of the group in the current study, some of the above categories should be combined. Pure sciences, applied sciences and engineering were thus combined to form a category 'Science related', and law was grouped with commerce and administration, with the other groupings remaining the same as in the Roos study.

A third system of grouping was attempted, based on the Holland (1985) coding system. It is described by Bisschoff (1988) for the Self-Directed Search (SDS), where a three-letter code, using the RIASEC letters, is used. The first letter in this code is ascribed the most importance, followed by the second letter and the third letter, according to the SDS results. It was not possible to grade the 19FII and Kodus tests results in this way, so it was of no use to grade the current activity by this method (following the Occupation tables adapted from Holland in the SDS manual), because it would be difficult to compare two different coding systems. Also, had the three-letter system been used, there would have been too many discrete codes for the small sample in the study.

The system attempted for the purposes of the study, was a coding using each of the discrete dimensions (R, I, A, S, E, C). Thus, for each pupil, the data was entered as follows: if a pupil's current activity was Occupational Therapy, coded RAS (see Appendix D), the RIASEC ('Holland') code would be entered 101100. Analysis could then be done on discrete dimensions, as well as on the adjacent pairs of dimensions eg. RI, IA, AS, etc. This code was used to categorise both current activities and activities which seemed to be indicated by the test results after career counselling in the Matric year. The system as described here, was not successful, and it was decided that the results obtained would not be included in the study because the system deviated from that of Holland.

In section 2.2.3., mention was made of an indication of readiness for career decision-making which could be estimated from two of the 19FII scores. 34 respondents had completed the 19FII fully, and their scores on the Active-Passive and Work-Hobby scales were noted. The average of the two scores was calculated, and if it fell on or below 4,0, the respondent would be classified as ready to make a career decision. Of the 34, 15 were classified 'ready' and 19 were not. The decision to use the above scales of the 19FII in this way was based on the information given by van der Westhuizen (1979) about their possible utility, but the writer has not found further reference to their being used in this way. It was hoped that this score might be a predictor of either success or of satisfaction.

An index of success in the chosen field was constructed by grouping the respondents into three:

- * Failed course and discontinued
- * Changed after 1 year, or failed 1 year but continuing
- * No failures, continuing with course from beginning

Subjective ratings of the influence of others on their career decision-making were then requested. This was to obtain an

idea of perceptions of the influence of others, and to test Beukes' (1985) assertion that teacher-counsellors have very little effect on career decision-making, and that subject teachers exert a greater influence.

There has also been evidence in the literature from Britain that parents are very influential in career decision-making. "As primary figures in the lives of developing persons, parents have great influence on the career development of their children...(who) turn to them for help with career planning more than to anyone else" (Palmer & Cochran, 1988, p.71). The question raised then was whether this was the case in the group of respondents.

The influence of results in Std.9, matric trials and finals was also rated by respondents, to assess the importance of the influence of academic achievement.

There are some resources available in Natal for further career counselling of matriculants. A question was asked to assess the extent to which this group used such resources.

Finally, a further subjective criterion measure, i.e. a rating of the degree of satisfaction with the course followed, was requested.

The results of the above study will be discussed in the chapter which follows.

CHAPTER FOUR

RESULTS OF THE STUDY

4.1 Methodology

In an earlier chapter, the difficulties encountered when one engages in evaluation research were discussed. One of the problems is to decide on a criterion by which the success of the programme may be measured. A criterion is defined as "a behaviour or condition which is or can be described in terms of an ideal and which is a goal" (Jensen et al. in Patterson, 1967, p.425). If the ideal goal of the career counselling programme is to improve decision-making skills resulting in the individual coming to a decision, it is necessary that the criteria decided on be linked to this. These measures needed to be categorizable and verifiable, and the writer strived to be as free from bias as possible in analysing the results of the questionnaire.

In educational systems, much of the efficacy of various programmes may be measured in terms of the academic results achieved by the participating pupils. Evaluation research then, has ready-made criteria to use. In Counselling, this is not the case. It is very difficult to measure, in concrete terms, whether the teacher-counsellor's programme has been effective. One of the factors complicating the issue is to divide out the effects of the counselling from the effects of other factors, for example, the influence of other people and the effects of achievement (or non-achievement).

A major difficulty in the research described in this dissertation was related to experimental design. The research was only decided on after the career counselling process had taken place. As such, there were no pre-programme measures or post-programme measures which would have made evaluation easier. A threat to empirical validity is 'selection bias',

because the respondents chose to reply, and they may not be representative of the whole group. The sample group could not be described as a normal distribution, and this has implications for the statistical analyses which could be used. It was also not possible to have a control group, because each pupil in that matric year participated in the programme. Had a control group of pupils not counselled been used, there would have been more control for empirical invalidity caused by extraneous variables such as history, maturation, testing, and attrition.

The tests used in the career counselling process were norm-referenced, and recorded as stanines, stens and percentiles, i.e. crudely continuous measures. In an attempt to evaluate these tests, the results were to be compared to current occupations, level of success, and degree of satisfaction, which were categorized, and these scores were then nominal variables. There are statistical difficulties comparing nominal variables with variables at other levels, which will be addressed later.

As described in section 2.1., a further difficulty encountered was that not all subjects had done the same selection of tests. This led to some complications in the analysis of data due to the attrition of subjects for various of the measures computed. In this study, two or more different sets of tests had been completed by the subjects when they were in their matric year (see Table 2.1.).

One of the ways of analysing data as described above is the analysis of variance (ANOVA). In this method, "the total variance in a set of scores ... is analysed into various sources" (Neale & Liebert, 1980, p.174). SPSS states that "Anova is especially appropriate when the dependent variable is an interval (and non-linear) measure and the predicting variables are nominal" (p.114). In the current study, the

dependent variables tended to be nominal measures, whereas the predicting variables were treated as interval measures!

Furthermore there should be no empty categories for this procedure, and this was not the case in this study. This then limited the use of Anova, although one Anova will be discussed in the section under 19FII, used because it was used by Roos (1986), in his study.

The statistical method termed Regression is an effective measure of assessing the association between variables. "In regression, ... one variable is specified as the predictor and the other as the criterion" (Neale & Liebert, 1980, p.85). Multiple regression would have been a useful method to use for analysis, however the following assumptions need to be met:

- * Both the dependent and independent variables need to be normally distributed interval variables, (ordinal variables are often used too),
- * the effects of the independent variables are assumed to be linear,
- * the independent variables should not be correlated with one another (Henderson, 1987, p.104).

It has been shown by Chatterjee & Price (1977) that the first condition is not as rigid as it might seem, in that they found sex (a nominal variable) to be a readily interpreted predictor in one of their studies (namely women in a firm are paid less!). Also, the third condition above is an ideal, rather than absolute, making for simple interpretation.

Multiple Regression was not used by the writer, however, because the information available did not suit this form of analysis, for yet another reason, the small number of cases. Regression analyses with many predictors and small numbers are an open invitation to statistically unstable outcomes. A further reason for not using Regression was that the predictor variables were correlated, sometimes substantially.

Another possible method of analysing data which was considered was Discriminant Function analysis. It has the advantage of being "designed to work with nominal dependent variables" (ibid, p.127), for example which of the fields described by Roos (1986) the subject has entered. Output from a Multiple Discriminant Function analysis includes the weights assigned to the predictors in forming the new scores that make the subgroups of subjects as different as possible. While these weights may be interpretable for the first one or two functions, Cooley & Lohnes (1971) feel that "research meaningfulness peters out before statistical non-significance is reached" (p.244). The fact that the independent variables were not normal distributions, and the difficulties related to the categories of dependent variables (subjects could not be adequately divided between categories), led to the writer not being able to employ this procedure. As mentioned above, all multivariate procedures respond best to far larger numbers of cases than were available.

Keeping in mind the above limitations imposed on the analysis of data, by the very nature of the data available, the writer will now describe the methods used, and the results of the study.

The purpose of the study is to attempt to evaluate the career counselling process, firstly, more objectively, by investigating whether there is a relationship between respondents' current activity and the tests used in the counselling; and secondly, subjectively, by respondents rating influences on their decision-making and their degree of satisfaction with their current activity. The results of the responses to questions in the questionnaire will be presented first in a descriptive manner, followed by the relevant statistical analyses.

4.2. Description of results

4.2.1. Current and previous activities

The activity engaged in during 1989 is represented in figure 4.1.

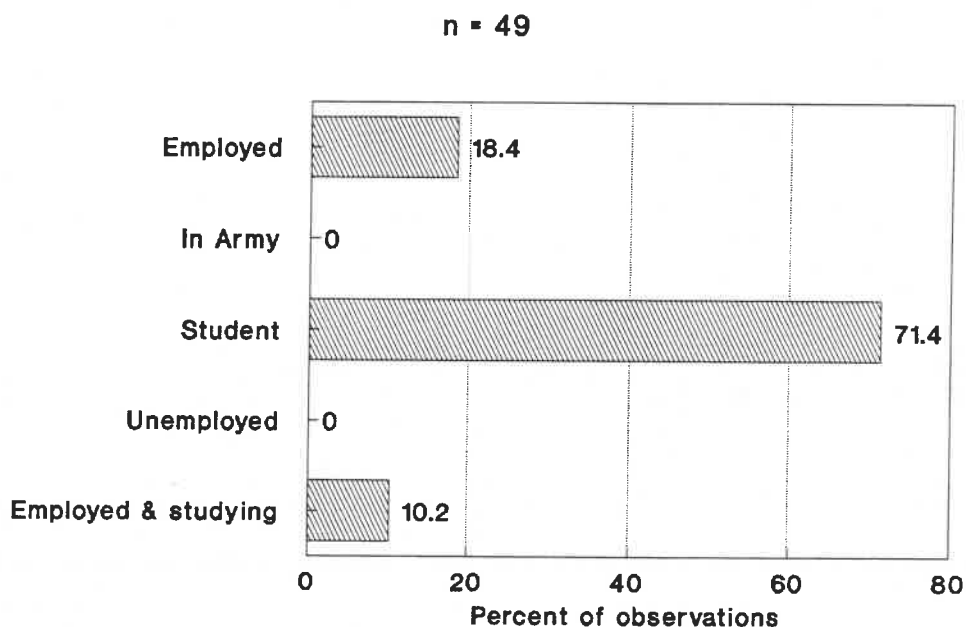


FIGURE 4.1 Distribution of activities

Since this was the group's third year out of school, it is to be expected that many will still be studying, because many tertiary courses are of three year duration. Of the group of 49, 9 were working full time, 2 of which had completed a Staff Nurse Diploma; 5 were working, and studying part-time; and 35 were studying full-time, 19 on the local University campus. This does lead to the problem of homogeneity in the group, with more than half being students. (Of the males, 3 had completed their military service the year before the study.)

A breakdown of the courses being studied by the students in the group is shown in Table 4.1.

TABLE 4.1. Distribution of courses

<u>University courses</u>						
B.A.	B.Soc.Sc.	B.Sc	B.Sc.(Eng)	B.Comm	MB.ChB	<u>Total</u>
12	3	8	1	2	1	27
<u>Diploma courses</u>						
Teaching	Dance	Nursing	Marketing	Public Rel.	Data P.	<u>Tot</u>
3	2	4	2	1	1	13

Information regarding activities during the previous two years was requested, to assess the degree of success the respondent was having in his/her chosen field. The information may be divided thus (Table 4.2.):

TABLE 4.2. Level of success

No changes or failures	:	31
Changed or failed 1 year	:	14
Discontinued study	:	4

This indicates that 63,2% of the group have enjoyed a measure of success in their chosen field of study or occupation. Of the remaining 36,8%, 8,2% made a total change from their first post-school activity. Of these four subjects, three were male, and failed their first year. The remaining female discontinued her course because she was not enjoying both her course and the campus she was on.

The 28,6% who failed one year or changed course direction did so for a variety of reasons. (Only one male was included in this group.) Two of the group started with a medical degree, but changed after one year because they were not enjoying the course; one to eventually do an M.B.A. and the other to do a B.A. degree. One subject completed 2,5 years of the 4 year nursing diploma, but converted to a staff nurse qualification because she did not enjoy the work. Three of the subjects changed from B.Sc degrees and two changed from commercial Social Science degrees, to more Arts orientated degrees. One

subject changed Commerce majors. One subject spent a year doing a secretarial course whilst she decided on a Technikon course; and one other changed universities whilst continuing a B.Sc (Agric).

4.2.2. Consultation with other counselling agencies

In response to the question regarding further counselling sought during the matric year, 10 (20,4%) had sought help from outside agencies. The sources of help are reflected in Table 4.3.

TABLE 4.3. Agencies for further counselling

Dept. of Manpower	4
NIPR (Durban)	2
Private counsellor	2
Technikon Natal	1
S.C.C. (Pmb)	1

This would appear to be a higher percentage than such agencies report for the whole province, and is an indication of the advantaged status of the respondent group - of the above, 5 would have travelled to Durban for the service.

4.2.3. Other influences upon decision-making

Respondents were requested to rate the influence of others on their career decision-making whilst they were in matric. This was a subjective rating from 1 (no influence) through 3 (moderate influence) to 5 (strong influence). The results are listed, in descending order of importance, in Table 4.4.

TABLE 4.4. The influence of others

	<u>Mean</u>	<u>Std dev.</u>
Mother	3,375	1,142
Father	3,125	1,347
Teacher-counsellor	2,872	1,172
Friends	2,277	1,155
Subject teachers	2,174	1,122
Sister	1,935	1,124
Other relations	1,619	1,058
Brother	1,595	0,985

The above results support the findings that parents have an influence upon career decision making. It is interesting that the influence of the mother is rated slightly higher than the father in the group; this may be because 75% of the group are female, and also because 18% lived in single parent homes, with their mothers. The importance of the influence of the teacher-counsellor is greater for this group than expected; this seems to contradict Beukes' (1985) statement that the teacher-counsellor has little influence, and that the subject-teacher has more influence.

The subjective rating of the influence of exam. results was requested on the same scale as the above information and is shown in Table 4.5. below.

TABLE 4.5. The influence of results

	<u>Mean</u>	<u>Std.dev.</u>
Finals	3,229	1,276
Trials	2,958	1,271
Std. 9	2,489	1,317

The importance of the influence of the final matriculation result is to be expected since admission to many courses is dependent upon this.

4.2.4. Rating of satisfaction

Finally, subjects rated their level of satisfaction with their current activity on a scale from 1 (dissatisfied) through 3 (moderately satisfied) to 5 (very satisfied). The mean level of satisfaction was 3,755 (Std dev. 1,164). If this is expressed as two groups, rating scores 1 - 3 as dissatisfied and scores 4 & 5 as satisfied, then 35 rate as satisfied and 14 as dissatisfied.

Subjects were also asked what they would choose if given the option to change occupation. 14 (28,6%) stated that they would not change, and 10 (20,4%) who were satisfied would change to a field related to their current one. 11 (22,4%) of the others who were satisfied would change to a totally unrelated field

(e.g. two of the males wanted to be professional sportsmen and one other wanted to be a pilot). In this third group, one wonders how much of this is wishful thinking!

Of the dissatisfied group (scores 1 - 3), 9 (18,4%), wanted to change fields completely, 3 (6,1%) were undecided, and 2 (4,1%) would change to a related field.

4.3. Statistical analysis of data

To attempt to gain some indication of whether the psychometric measures ("tests") used in the career counselling process were useful as predictors, it was first necessary to decide on criteria. The four criterion measures were:

- * the matric results computed in points (see section 3.1),
- * degree of success recorded by subjects,
- * current occupational grouping (using the 5 dimension code after Roos (1986) - see section 3.3 above),
- * and the subjects' recorded level of current satisfaction.

It was decided, firstly, to compute a Pearson Product Moment Correlation coefficient to compare the test results to one another and to the matric results, the subjects' degree of success, and their rated current level of satisfaction (see Appendix E for full table). The correlation coefficient "is a symmetrical measure of the relationship between two variables" (Neale & Liebert, 1980, p.85) and as such indicates whether there is a relationship, and the magnitude of that relationship. Although the existence of a correlation does not imply causation, it is a good starting point for a statistical investigation. One of the fundamental rules for correlational research "is to represent adequately the range of scores in the population of interest" (ibid, p.80). Although the writer aimed for this, the discussion in 3.1 indicates that the sample was probably biased in favour of the higher achievers in the group, an unavoidable difficulty, with correlations

running lower than they might have on a more random sample of white Natal matriculants.

Each test will be discussed separately below, along with any other relevant data. The sample size, $n = 49$, and the relative homogeneity of the sample, are limiting factors which affect conclusions which may be drawn from the findings below.

In the tables below, level of significance is indicated as follows: * = 0,01; ** = 0,001. The figures shown are decimal fractions, rounded off to two figures, with the decimal point omitted. In the tables, only correlations which are significant are noted.

4.3.1. The NSAGT

TABLE 4.6. NSAGT correlations

	NVIQ	VIQ	FSIQ	SAT1	SAT2	SAT3	SAT5	SAT6	SAT9	SAT10	PTS
NVIQ		66**	90**	53**	50**		44**			35*	42
VIQ	66**		92**	69**	38*	51**	53**	35**	50**	40*	60**
FSIQ	90**	92**		66**	49**	47**	53**	35*	43**	39*	56**

The Full scale, Verbal and Non-Verbal scores correlate significantly with one another. There are also a number of significant correlations with subtests of the SAT, and with the University admission points scored by respondents.

4.3.2. The SAT

TABLE 4.7. SAT correlations

Tests	1	2	3	4	5	6	7	8	9	10	PTS
1			48**		54**						43*
2			33*	48**	43*					45**	
3				40*							46**
4						33*	35*				43*
5											
6											
7								63**			
8											
9										37*	52**
10											

The above table gives some support to the grouping of the subtests of the aptitude test discussed in section 2.2.2.

There is correlation between two of the tests of verbal ability, viz. Verbal Comprehension (1) and Disguised words (3); between the two tests of numerical ability, viz. Calculations (2) and Comparison (4); between two of the tests of visual-spatial reasoning, viz. Spatial 2D (7) and Spatial 3D (8) and between the two tests of memory, viz. Memory (Paragraph) (9) and Memory (Symbols) (10). It is not possible to come to any conclusions about the other significant correlations because the small sample size and its homogeneity preclude this.

The reader should note that tests 1 (Verbal Comprehension), 3 (Disguised words), 4 (Comparison) and 9 (Memory - paragraph) correlate with the University admission points calculated from the matric results of the candidates, but the points scored are also a function of the subject package followed by each subject (a variable not taken into account in this study). It would thus seem that the SAT may be a partial indicator of achievement in the matric examination.

It is also possible to calculate an approximate IQ score from the raw scores of the SAT. The manual (Fouche & Verwey, 1978) substantiates this by referring to the factor 'g', "the factor common to all tests of complex problem solving" (p.55). It is

believed that a number of the SAT subtests "can be described as tests which require the solution of complex problems" (ibid). It is also possible that the "relatively high positive correlations between certain tests ... can be ascribed to a general factor" (ibid). A scatterplot and correlation of the calculated SAT-IQ's to the NSAGT Full Scale IQ was done (see Appendix G for scatterplot). The correlation coefficient was 0,75291, indicating a significant positive correlation between the two scores, and indicating that calculating the SAT-IQ may be useful, especially if NSAGT scores are suspect or not available for particular pupils.

4.3.3. The 19FII

It does not appear to be useful to list the intra-test correlations for the 19FII here. (The full correlation table may be consulted in Appendix E). The manual (Fouche & Alberts, 1979) does list intercorrelations for the 19FII, but does not develop this further to attempt to group the 19 fields into more manageable categories.

Doubtless, with sufficient data, a technique such as Factor Analysis would be the start of a more sophisticated reduction of a pupil's 19 scores to a more meaningful number: it was hoped though, that a qualitative, visual inspection of the 19FII correlation matrix would produce a meaningful breaking-down of the subjects into subgroups, but the results were inconclusive and the coding system problematic, thus the results are not reported here.

It was decided that the stanine scores in the 19 fields should be compared with a categorisation of the respondents' current activities following the pattern used by Roos (1986), as described in section 3.3. The eight categories used by Roos were collapsed to become five categories, namely, Science - related, Medical, Pure Social Sciences, Applied Social Sciences, and Law & Commerce. A two-way anova was then

constructed, with 5 rows, being the five groups listed above; and 19 columns, being each pupil's 19FII stanine scores.

This ANOVA has statistical limitations because repeated-measures ANOVA's make mathematical assumptions of the data, beyond the simpler assumptions of between-subjects ANOVA's. The data entered failed one of the checks provided by SPSS (so the results should be very cautiously considered); but the writer was hoping for a significant interaction, which would have indicated that some 'Roos' groupings scored high in some 19FII scores, whilst other groups scored low. There was no significant interaction.

The 19FII mean scores are plotted on figures 4.2a - 4.2e for the subjects who fell in each of the five 'Roos' groupings. Although the interaction, 'Roos' X 19FII, was not significant, it was felt that the profiles made good sense at some points. (For better clarity in the following discussion, the five 'Roos' groups will be noted in parentheses). Note, for example, on the composite graph, figure 4.2., that the Roos 'Arts' subjects are indeed higher than the four other groups on Fine Art, Language and Public Speaking; and that Roos 'Science' subjects are higher than the others in 19FII Numerical.

It is interesting to inspect each of the profiles separately, (figures 4.2a - 4.2e). The highest mean stanine for the 'Science' and 'Applied Science' groups is Creative Thought, and the highest for 'Medical' is Science. The highest mean score for the 'Arts' and the 'Law & Commerce' groups is Business. Inspection of the whole mean profile of each 'Roos' group, reveals that though the highest score might make sense, the other high mean stanines are often not as well related to the occupational group. Examples are: Business, Law and Public Speaking to 'Science'; Law and Business to 'Medical'; and Law, Public Speaking, Sociability and Social Work to 'Applied Science'. The 'Law & Commerce' profile tends to be

inconclusive with most of the scores being grouped around stanine 5.

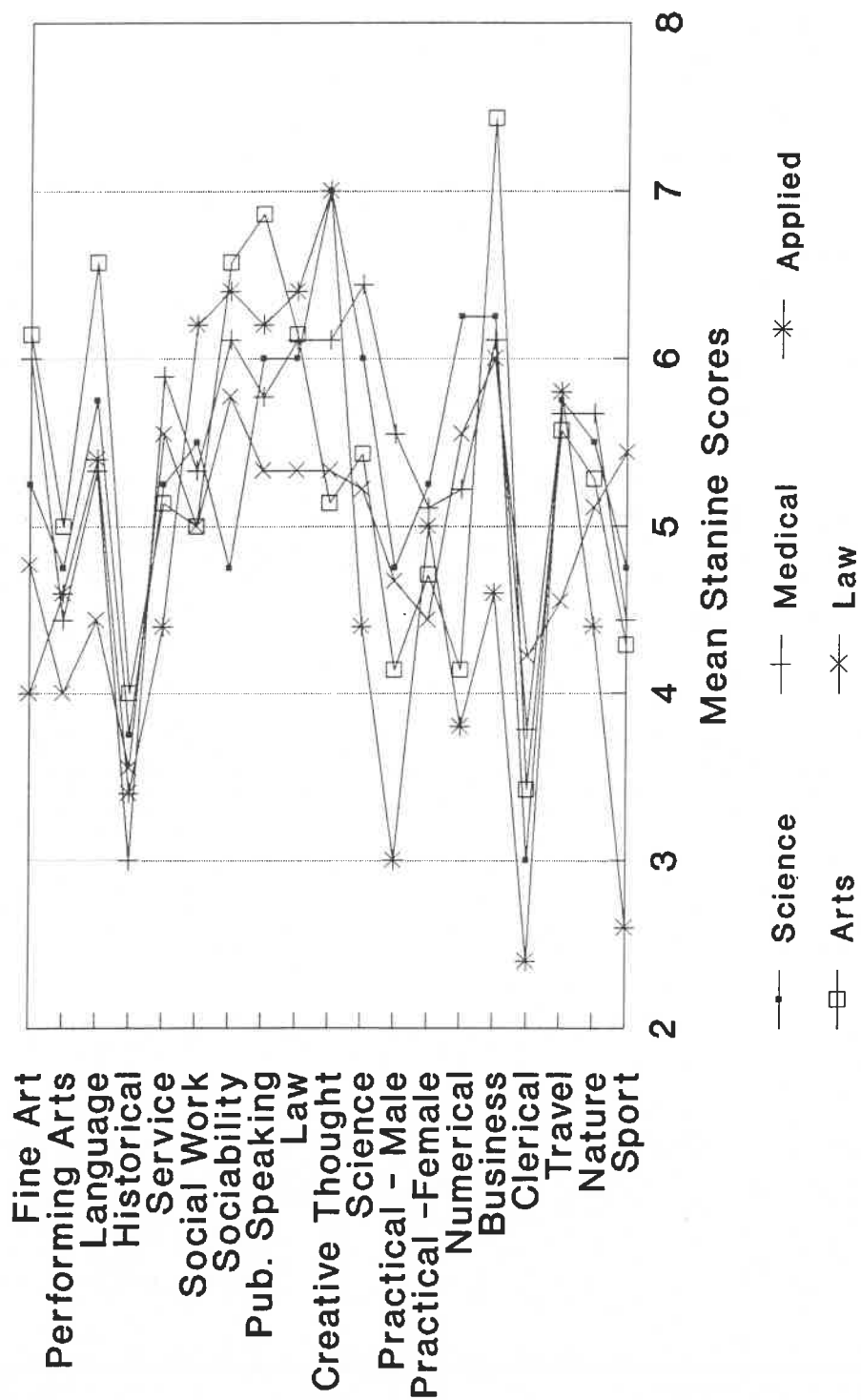


Figure 4.2 Two-way ANOVA

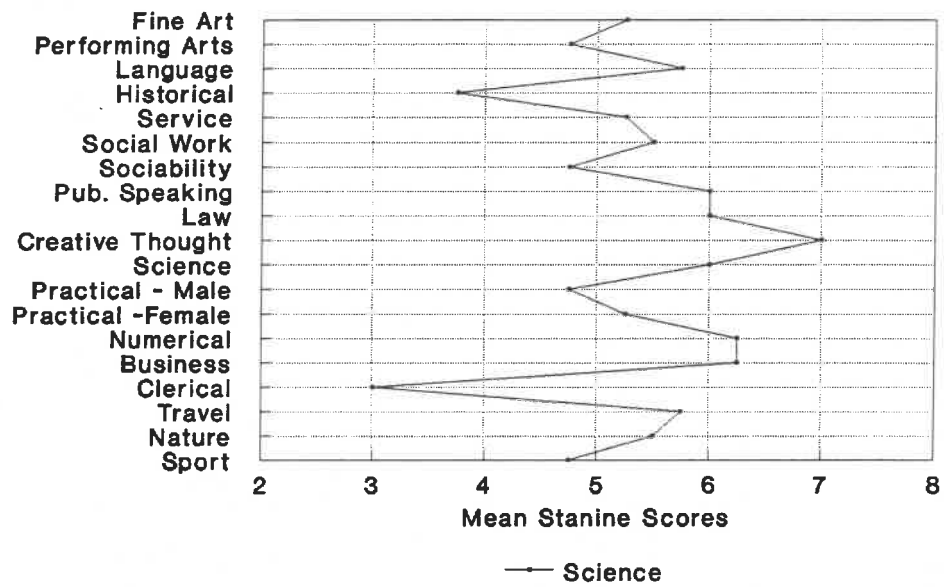


Figure 4.2a Two-way ANOVA

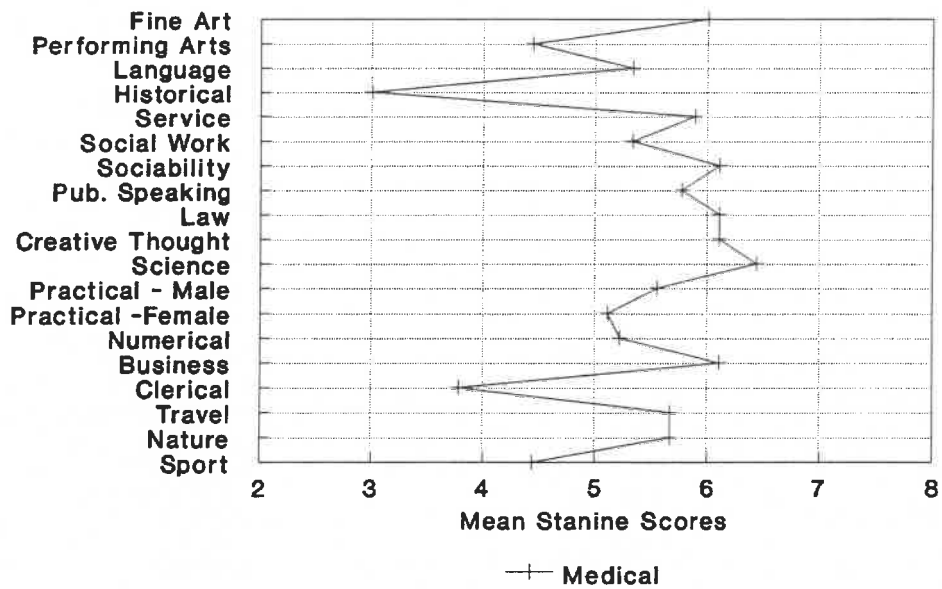


Figure 4.2b Two-way ANOVA

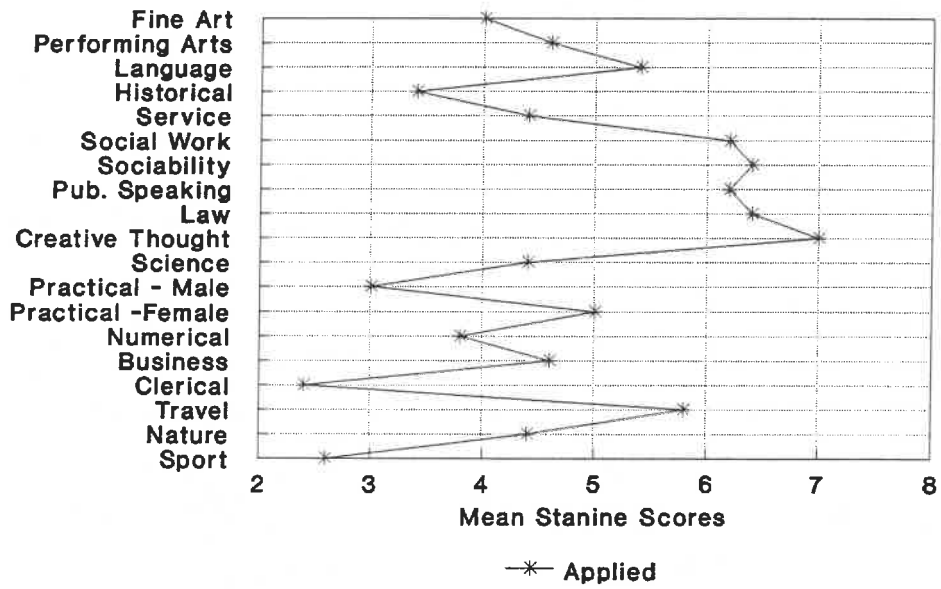


Figure 4.2c Two-way ANOVA

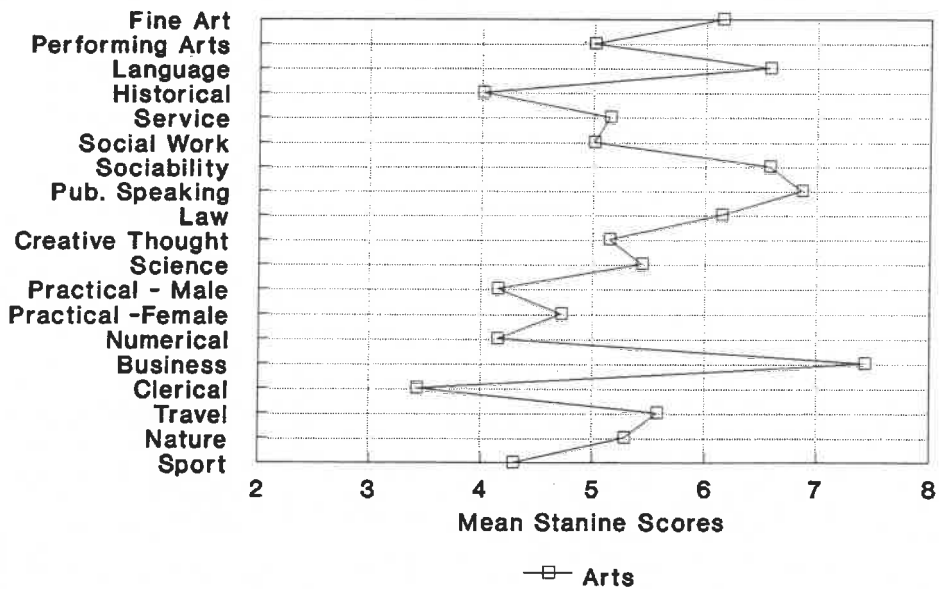


Figure 4.2d Two-way ANOVA

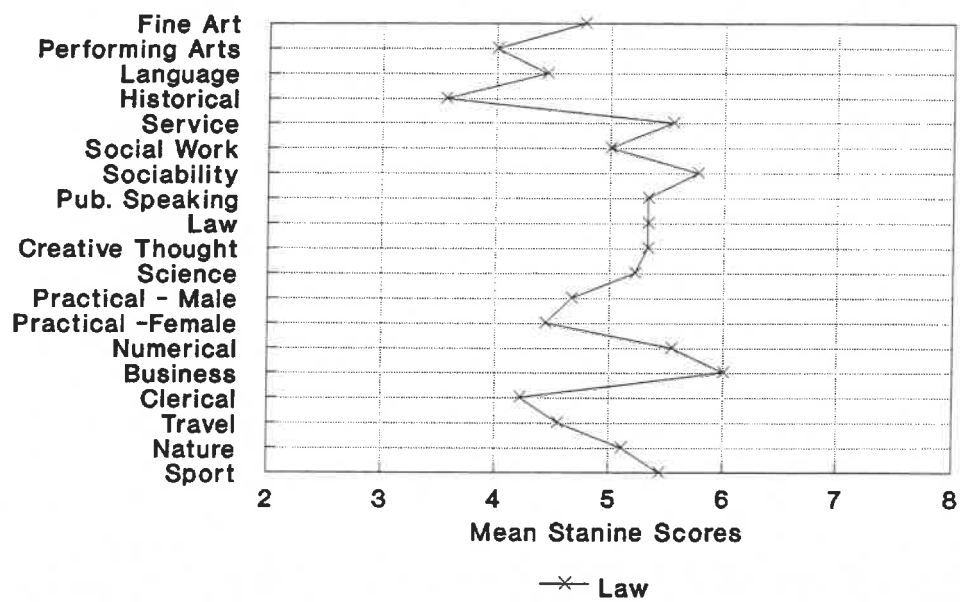


Figure 4.2e Two-way ANOVA

Overall, the above discussion and the information in Appendix H, shows that the results of the 19FII were very difficult to relate to current occupations, and this leads to doubts about the usefulness of the 19FII as a predictor.

4.3.4. The JPQ

The scores for each of the four dimensions of the JPQ are measured from 0 - 10. Scores below 4,5 on each of the dimensions are taken to indicate the personality characteristics: Introversion, Feeling, Intuition, and Perception. Scores above 5,5 would indicate the characteristics: Extroversion, Thinking, Sensation and Judgement (see section 2.2.2.). The scores on the first three dimensions are used to describe 8 different personality types, and careers suited to these types are listed (see Appendix F). The categories indicated for the 38 respondents who had completed the JPQ were listed by the writer. 16 had profiles which could have fitted two or more personality groupings because one or more of their scores fell between 4,5 and 5,5. Their current occupations were then coded according to the JPQ listing, and compared to the category indicated by the JPQ.

10 of the respondents were in occupations as predicted by the JPQ, whilst 28 were not. This indicates a successful prediction for 26,32% of the subjects. The predictions for 10 were wrong in one dimension, for 16 were wrong in two dimensions, and for 2 all three dimensions were wrongly indicated by the JPQ. These results are not encouraging, and although a personality scale is useful, it would seem that the JPQ was not a good predictor of occupation for the subjects of this study. Comparable data, which may have allowed the relative performance of the JPQ to be assessed, was not to hand (e.g. JPQ profiles of other selected high school subject groups to compare with this sample; or competing questionnaires of the same type such as the Myers-Briggs Type Indicator (in Buros, 1978, p.630) - not done with the sample group).

4.3.5. The Kodus

The Kodus Interest Questionnaire is an ipsative measure, and as such, it stands to reason that scores will tend to correlate negatively with one another. The results of the Pearson Product Moment Correlation Coefficient produce the following significant correlations, reflected in Table 4.8 (see Appendix E.7 - E.9 for full table of correlation matrix):

TABLE 4.8. Kodus correlations

<u>Positive correlations</u>	
Science	- (Machinery (Computational
Writing	- Social (Group)
<u>Negative correlations</u>	
Animals	- Business
Machinery	- (Writing (Reading

It was unwieldy to use the Kodus Interest Questionnaire as a predictor, having 12 variables, so the writer created six categories following the 'Holland' dimensions, so that they could be compared to current activities grouped in the 'Holland' code. The grouping of the 12 categories is shown below in Table 4.9.:

TABLE 4.9. Kodus-'Holland' grouping

REALISTIC	(Plants (Animals (Machinery
INVESTIGATIVE	(Science (Computational
ARTISTIC	(Art (Reading (Writing
SOCIAL	(Social (Group) (Social (Individual)
ENTERPRISING	(Business
CONVENTIONAL	(Handwork

The scores on the Kodus were grouped as above, and a Kodus score above the 70th percentile would code in the related dimension. If more than one Kodus category was included in a dimension, it was scored if one category scored above the 70th percentile.

A table comparing the 'Kodus Holland' code and the 'Holland' code for current activities was constructed. The results were not significant, but it is not possible to draw conclusions from this for the following reasons: i) the writer's grouping of the Kodus scores as described above is not empirically validated; and ii) only 23 of the respondents had done the Kodus, too small a sample.

Perhaps the writer lacks Doreen Kimura's (Holloway, 1990) skill and fascination at detecting pattern in research data: then again, Kimura will stick to carefully planned and complete sets of observations, seldom available to those doing more modest research.

4.3.6. The COIB

Study of the correlation coefficient table (Appendix E.8-9), showed that the 5 discrete categories could possibly be condensed to become 4 because the Active/Outdoor and Practical categories were correlated. The significant correlations between sub-tests of the other two interest inventories and the COIB is shown in Table 4.10. below:

TABLE 4.10. COIB correlations with 19FII and Kodus

<u>19FII</u>	<u>COIB</u>	<u>KODUS</u>	<u>COIB</u>
Fine Arts.....	Artistic	Business.....	Practical
Practical - fem...	Practical	Art.....	Artistic
Nature.....	Active/Out.	Plants.....	Active/Out
Sport.....	Practical		

There was little correlation between this test and the other two interest tests. These two factors seemed to the writer to indicate COIB groups which were too large and over-inclusive,

with probable poor predictive validity, especially since the tests had been completed in the subjects' Std. 8 year.

Kline (in Buros, 1978) notes that the COIB has a number of difficulties: the analysis of the scoring system by statistical procedures is difficult because the scores are ipsative, the norm group is dubious, and the test validity is not well attested. For these reasons he says that the test could not "be recommended for serious psychological research into vocational psychology" but states that it may be a valuable instrument for general group career discussion (ibid, p.1000). One of the points in favour of such use of the test is that it was "designed for teenagers whose abilities are average or below average" and its usefulness is as a "framework within which to start pupils thinking about jobs" (Sharp, in Buros, 1978, p.1001). It would thus seem to be more suited for use in group counselling, and for this reason further investigation of the test was deemed unnecessary by the writer.

The subjective ratings and criteria will now be discussed.

4.3.7. Other correlations

A study of the Pearson Product Moment Correlation table (Appendix E) revealed two other patterns which are of note.

The first was significant correlations between the influence of various people and other factors. It would appear that subjects who were influenced by one parent were more likely to be influenced by the other parent, their friends, subject teachers and the teacher-counsellor. Thus those whose decisions were influenced by one source were more likely also to say they had been influenced by other sources as well. There is also a correlation between sex and influence, showing that the females tended to be more influenced by others. An interesting significant negative correlation was between

influence of the father and rating of satisfaction, but no firm conclusions can be drawn from this.

The second was a significant correlation between the "Orientation to work" score (obtained from the Active-Passive and Work-Hobby scales of the 19FII), and the influence of Trials and final matric. examinations. An implication of this may be those measured as more work-oriented are more able to realistically assess facts before making decisions - this is however, surmising on the part of the writer. It must also be noted that no significant correlations were found between "Orientation to work" and degree of success or level of satisfaction.

4.4. Summary and discussion

At the beginning of the chapter, the difficulties encountered with the statistical analysis of the data available, were noted. This is the reality of evaluative research, in that one seldom works with data which is complete, or with data which is well-suited to statistical analysis. It does, however, emphasise the need to plan evaluation before a programme is instituted. There is the need for the data to be manageable, and to be easily categorised. The problems encountered in terms of sample size, lack of a normal distribution, difficulty in determining criterion measures, are all common problems faced by researchers in the Social Sciences when dealing with the real world rather than laboratory experiments.

In summarising the findings described in this chapter, it would seem that this has not been a very successful study. Much research is, however inconclusive, and valuable lessons can be learned from this exercise.

Firstly, although there is not sound evidence for the success of the career counselling programme, there is also not enough

evidence to conclude that it was a failure. The fact that such a large number of the respondents were progressing successfully at this stage of their chosen careers, and the large number who reported satisfaction, are encouraging signs.

Secondly, some comments can be made about the tests used in the career counselling process.

- * There was some correlation between the NSAGT and some SAT subtests; however the correlation between the NSAGT and matric points score and degree of success was not significant. This leads to the conclusion that with this group, factors other than measured IQ, were of importance. Sprinthall (1981) quotes McClelland who "very clearly suggests that success in living apparently has a small relationship to academic content mastery ... scholastic tests only predict grades in school; yet grades do not predict success in life" (p.490). Whilst the writer acknowledges that conclusions regarding the NSAGT cannot be made from results of this small skewed sample, it seems that NSAGT scores should be used with care by career counsellors.

- * Some of the SAT subtests correlated with the matric points score, thus this test may be useful as an indicator. The test has the advantage of having been able to be grouped and the profile may be shown to subjects. It may thus be a useful way of showing pupils their stronger and weaker aptitudes (see Appendix B), particularly in view of the statement by Pryor (1985) that "it seems that people are prone to be less accurate in estimating their psychological abilities than they are in estimating their vocational interests" (p.235). Furthermore, the utility of a client being given a profile, which is then explained fulfils three of Pryor's (1986) principles regarding test usage: i) that the test results belong to the clients; ii) that test

results should be communicated at a meaningful level to the client; and iii) that counsellors are honest with their clients. The fact that a SAT-IQ score may be calculated, may also be useful.

- * The predictive ability of the 19FII was not as good as the study by Roos (1986) found. When each of the 19 fields were used in various analyses, significant matches with current activities were not found. The 19FII is a rather dated test, as revealed by a survey of the items. This factor and the difficulties experienced in interpreting the test well, lead to the writer doubting the utility of this test in the 1990's.
- * The Kodus Interest Questionnaire and the COIB were also not very successful with this sample, and their ipsative nature led to problems when analysing such scales by standard statistical procedures (Buros, 1978, p.1000). Considering this and the previous point, the writer believes that there is a need for different interest inventories to be introduced at the school level, and there is merit in considering those inventories which are based on the 'Holland' code system due to the utility of the system for categorising occupations (to facilitate follow-up).
- * Osipow (1976) notes a study which showed that "personality and major choice are somewhat related and that personality serves as a background factor for college major choice" (p.136). The JPQ may give some indication of personality factors, but was not very successful as a predictor in this study. This does lead to some doubt as to the utility of the JPQ, but wider assessment of its value is necessary, before conclusive statements can be made.

Thirdly, other comments about the study:

- * There appears to be some value in assessing the influence of others upon career decision-making. The influence of others raises questions about levels of autonomy and maturity, and would seem to be a valuable topic to research further.

- * Many people in South Africa doing three year degrees, take four years to complete them, and a number of this sub-group of respondents seem to be following this pattern. A number of changes were made after one year because they were neither enjoying nor interested in the courses.

- * The questionnaire used also had some limitations. Better categorisation of respondents in terms of success and satisfaction may have led to improved analysis. It would also have been helpful to include a question in the questionnaire asking for major courses followed, to judge the degree of homogeneity in the group further.

CHAPTER FIVE

CONCLUSION

"What began at the turn of the century under the term vocational guidance, with a selection and placement focus, and then shifted in the 1920s and 1930s to a focus on personal adjustment, has now assumed a developmental focus. Selection, placement, and adjustment remain but are encompassed in the concept of career development over the life span. Societal conditions, interacting with our more complete knowledge of human growth and development in career terms, as well as with the broader array of tools and techniques, have brought us to the realisation ... that all individuals can benefit from career development programs and services ..."

(Gysbers, 1984, p.24)

This dissertation has attempted to examine aspects of career counselling as practiced in a N.E.D. High School within the broader context of career development. Criticisms have been levelled at high school counselling, and this, combined with staff cuts leading to less time being available for career counselling, has underlined the importance of evaluation studies. The concept and status of evaluation research has been discussed. A major difficulty in measuring the effectiveness of counselling is finding satisfactory criterion measures, which are able to be operationalised; this has been discussed in earlier chapters, and recommendations regarding criterion measures will be made in 5.3.

The study described in chapters three and four was aimed at evaluating the effectiveness of the career counselling programme in one high school. This study is thus circumscribed both by numbers and by pupil characteristics, leading to limited generalisability of the results. There are inevitably variations between schools organisationally and socially. Bearing these limitations in mind, the writer has found the study a valuable experience because a number of far more general issues facing career counsellors were exposed, as the

study progressed. These issues will be discussed in the sections below, with some reference to the study.

The ideal, in an evaluative study, would be to comment on the cost-effectiveness of career counselling in high schools. Comment was made, in chapter one, that the assessment of a strategy 'in the field', under far from ideal conditions, is difficult; and that to survive the rigours of such evaluation, the "effect must be substantial, and the 'treatment' robust..." (Cherry & Gear, 1987, p.181). The current study has shown how difficult such an assessment is, but the writer would still agree with Oliver & Spokane (1988) "that more career counselling-outcome research ought to use actual clients" (p.459), rather than use solicited clients.

Oliver & Spokane also suggest the inclusion of "multiple outcome measures, perhaps representing the three major classes of outcomes, career decision-making, effective role functioning, and satisfaction" (ibid). This was attempted in the study, with the exclusion of career decision-making. It is however, difficult to operationalise these criteria.

The need to assess young people's perceptions of the career counselling process (ibid, p.59) was noted in chapter one and this was attempted in this study. It is the experience of many teacher-counsellors that pupil motivation with regard to career decision-making is relatively low until the matric year, and even then, Brownell (1990) found that "roughly 10% of all pupils writing their final school examinations were still not serious about making any career decision" (p.5). Furthermore, approximately 70% of the sample had only started to consider careers during Stds 9 & 10, and "it seems likely that parental pressure on them to do so was a major factor, since both ... groups in the sample consistently perceived their parents to be more concerned than they were" (ibid). These findings cast doubt on the efficacy of measures of pupils' perceptions of the process during or shortly after

career counselling. It is important that the seeming indifference of pupils should not be regarded as an uncaring attitude, but rather seen as a side-effect of an inadequately developed sense of identity, manifesting itself in avoidance of the issue.

The study discussed in this dissertation was conducted three years after the counselling, and though this raises the problems of other influencing variables, the respondents were possibly able to view the process with more objectivity and from a more mature standpoint. There was a surprising level of co-operation and interest shown when contact was made with a number of the respondents. The rating of the influence of the teacher-counsellor as third in importance, after the parents, was also a surprising finding, at variance with the literature (Beukes, 1985).

Although it is not possible to make conclusions about the success or otherwise of the career counselling process, for the reasons given in chapter four and above, it is important to note that the majority of respondents were experiencing a measure of success and satisfaction in their chosen activity. Conclusions about causative factors may not be drawn, but something was obviously working somewhere! There is a definite need for bigger studies over a far wider spectrum of the school-going population, with more complete data-sets and operationally satisfactory criteria, and even more so, in an ideal world, for a biographically comparable, but non-counselled group.

5.1. Use of the career development model

One of the writer's major criticisms, with hindsight, of the career counselling procedure, as implemented by her and many other teacher-counsellors, is the use of the matching or trait - factor model. A developmental model of career counselling does not view the process in isolation, but far more

holistically. "Awareness of demographic characteristics, psychological problems, social learning experiences, decision-making styles, and personal characteristics, especially those of self-identity, can be most helpful in viewing the client from a more holistic perspective and can save us from the trap of prescribing one treatment for career indecision to clients with widely varying needs" (Downing & Dowd, 1988, p.154).

The difficulty faced by the teacher-counsellor is that many high school pupils are still firmly within the adolescent developmental phase, with many differing developmental tasks to face. Decision-making with regard to direction after school is but one of these tasks. This leads to a paradoxical situation: it is important that pupils do not make firm career decisions before they are ready (ie. leading to foreclosure), yet they are expected by society to make such decisions. Sprinthall & Collins (1988) express this as follows: "Commitment and openness are not exactly compatible concepts. Yet, in essence, they are the objects of career development: to make fully informed decisions and commit oneself to ... successful implementation, and to remain open to new information... Thus the problem is to help teenagers understand the paradox" (p.503). Piaget (in *ibid*) notes that commitment to career is vital to transition from adolescence to adulthood; it is important that the term career is interpreted as "investment of self into a significant work experience".

Sprinthall & Collins (1988) discuss the concept of career commitment. They believe that "a planning orientation and purposeful exploration are central to the process of career development in high school, college, and the immediate subsequent years. Between 25 to 36, however, the process shifts from exploration to career commitment" (p.493). This has important implications for the work of high school counsellors - it is important that both pupils and their parents are educated about the process of career development,

and that the counsellor is not pressurised into prescribing a career for a teenager who is not ready yet to make the decision. Counsellors must beware of "retaining a high degree of external control, especially with subjects who are low-internal on locus of control" (Krumboltz, 1979, p.579). This raises the issue of the training of decision-making strategies.

Much has been written about the need to educate pupils in making decisions, but understanding of the underlying process must be a first priority. Sprinthall & Collins (1988) describe the development of decision-making strategies from what they term Stage I "Impulsive or leave it to fate" through Stage II "Compliant, other directed, or exploration leads to confusion and/or paralysis" to Stage III "Rational planning, or analytical and creative". The decision-making strategies taught in schools tend to be in the rational mould, yet many pupils are not in the position to make their decisions in that way. It would seem that an individual assessment of decision-making stage and style are necessary when applied to real life decisions, rather than a generalisation which may not apply.

A further important aspect which develops to differing levels during adolescence is self-efficacy. Social learning theory has been making increasing contributions to the field of career counselling over the past decade, and the theory of self-efficacy developed by Bandura needs to be kept in mind by the counsellor. Lent (1987) quotes studies which indicate that self-efficacy is an important mediator of behaviour, affecting "choice of ... settings and activities, as well as degree of effort expenditure ... self-efficacy beliefs serve as an important cognitive influence on career decisions and achievements..." (p. 293).

The reason for the writer going into some detail above, is to stress that counselling from a developmental framework should:

- * strive to educate both pupils and parents about the dangers of making pre-emptive career decisions, and that indecisiveness is not a sign of personal inadequacy, but may be appropriate at this developmental level (see section 5.4);
- * strive towards contact with other counselling agencies to work towards a more ongoing service because career counselling is not a 'one-stop' process;
- * use a developmental framework for individual counselling such as that proposed by Super (see section 5.5.).

5.2. The realities of the occupational world

A further difficulty faced by career counsellors is that, armed with the results of a variety of tests, the information gathered from comprehensive interviews, and as thorough a knowledge of the client as possible, it may still be difficult to help a client to come to a decision, if there are few opportunities available in the real world for the client to be appropriately placed. Pryor (1985) comments that "in times of limited job accessibility, psychological factors may not be particularly influential in occupational choice" (p.234). Limited space and opportunity in tertiary institutions and rapidly escalating costs of such training are problematic, and with unemployment figures rising steadily in South Africa in the midst of a recession, it is possible that many school-leavers will not be able to find occupational activities to which they are well-suited (and some will not find any at all).

It is thus necessary for research work to be done in the area of integrating economic and social factors which impact strongly on career decisions into career counselling theory. Pryor (1987) raises the issue of 'Compromise' as a forgotten dimension of theory and practice. He states "...the onset of persistently high levels of unemployment and the curtailment of many career opportunities has made compromise a reality in

the lives of many career decision-makers" (p.159) and goes on to describe Gottfredson's circumspection / compromise theory. This seems particularly relevant in South Africa in the 1990's.

The impact of being unsuccessful in finding a suitable occupational role has great influence on the self-concept. Social factors have an important influence on self-identity, and "late adolescence is clearly a time of identity crises and young people are often insecure about themselves" (Hawkey, 1983, p.41).

The above points underline the necessity for teacher-counsellors to be aware of the 'real world' issues encountered by pupils leaving school, and an area which will require attention is that of programmes to provide skills and alternatives to unemployment. This is emphasised by Watts (1986), and he acknowledges "growing pressures ... to attach higher priority to employers' needs as opposed to pupils' needs" in Britain (p.170).

5.3. Issues which warrant further investigation

During the course of this study, the writer encountered a number of issues which require further research and discussion, particularly in the South African context. Some have been mentioned in the above sections, and this section highlights others.

5.3.1. Parental involvement

The Schools' Handbook notes that "parents must be meaningfully involved in the process of decision-making and should be encouraged to make use of the services offered by the counselling department before they approach other specialist counselling and vocational agencies" (Brownell, 1989, p.15). This study has found that parents were the most influential people in the respondents' decision-making, and Palmer &

Cochran (1988) state that parents "tend to want to play an active role" and "would like to fulfill the role more effectively, (but) there is little assistance available to guide them" (p.71). It thus seems that further investigation into parental involvement, to complement the work of the teacher-counsellor, is necessary.

Earlier, it was mentioned that education of parents and helping them to be more realistic in their expectations, and to dispel some myths, are important aims. Van Vuuren (1975), ends his study by saying "more opportunities should be created for parents to be involved in vocational guidance programmes..." (p.79). Furthermore, "... given the unsettled and unsettling nature of making one's way in the adult work world, a strong working relationship with a parent might have a profound importance to the child trying to make this transition and become established. Parents are a potentially continuous source of support to adolescents throughout this period" (Palmer & Cochran, 1988, p.75). Parents are also often sources of financial support for the years of tertiary training. It seems to make sense to involve parents in the process, then.

The writer, however, has some reservations about parental over-involvement. The same article quoted in the above paragraph states that the core tasks of moving from adolescence to early adulthood require "the development of certain attitudes and competencies such as planning ability, decision skills, information acquisition and appraisal, and an exploratory attitude" (p.72), and Sprinthall & Collins (1988) stress the "significance of promoting the emergence of individuality during this period" (p.501). It thus seems that programmes involving parents need to be carefully tailored, so that parents do not take over the tasks required of the teenager and perhaps retard her/his development. Kinnier et al. (1990) noted a possible relationship between career indecision and family enmeshment, with older and more

individuated students being more decisive. Further research is necessary in this area.

5.3.2. The role of the school in career counselling

Traditionally, the school has been perceived as a major source of career counselling because "the school has a role in promoting the psycho-social maturity of its pupils" (Skuy et al., 1985, p.273). This has led to societal expectations which are often unrealistic, especially when the developmental nature of career maturity, described earlier, is taken into account.

If a more developmental standpoint is taken, perhaps career counselling should be far more community based, to provide an ongoing service to young adults both on leaving school and continuing into their twenties. Bradley (1990), recommends a shift from schools to a tertiary/community base, especially as the financial squeeze gets tighter. He questions whether the careers service should be in the educational sector if training provision is demand-led, and states that there is the "need for the Careers Service to be responsive, more competitive and proactive in the rapidly changing environment" (p.153).

The suggestion of a community-based service is a departure from traditional practice, and raises the thorny issue of funding; but there may be some merit in more centralised resources and expertise, and relief for already stretched school staff resources. The writer believes that this merits further research.

5.3.3 Changing female roles and aspirations

Whilst this is not the forum for more comprehensive discussion of this topic, there is the need to mention certain issues which have arisen as a result of the study. The study described in this dissertation consisted of a sample in which 79% were female. Downing & Dowd (1988) discuss three problems

which researchers have found to influence women's career choice: i) "sex-role stereotyping creates expectations ... and limits their aspirations"; ii) "fear of success ... reduces the chances of marriage and conflicts with traditional role values"; and iii) "help in preparing for employment is a critical issue ... especially if they choose to go into predominantly male jobs" (p.147). It is possible that the above factors had influenced the respondents' choices, and this extraneous variable perhaps had a notable effect on the results of the study. Informal contact with some of the respondents raised this question, but unfortunately no questions in the questionnaire addressed these issues.

Sprinthall & Collins (1988) state that "schools do very little to help young women and young men understand the issues of career development in other than traditional and stereotyped terms" (p. 500), and if this is true for the USA, it is possible that it would be even more so in South Africa. Furthermore, Slaney (1984) notes the concern that interest inventories are biased towards males (p.351); and the Roos (1986) study had an all-male sample. This would seem an important area for further study.

5.3.4. Teacher-counsellor training and effectiveness

Bradley (1990) notes that "the evidence suggests that the more active a career officer is in a school, the more advanced pupils are in their vocational development" (p.152). This would seem to impact both on teacher-counsellor training and on counsellor experience.

The writer, as a beginner teacher-counsellor, felt the effects of little specific training and a dearth of good resources, other than the tapping of the expertise of colleagues at other schools. Brownell (1990) states that "many, probably most, school counsellors have no specialised training in career counselling" (p.4). He goes on to stress that teacher counsellors should then keep their consumer public informed

about what they can and cannot expect, and that training institutions should take seriously the need for a specialist component (career counselling) in courses offered.

Oliver & Spokane (1988) state that one of the study characteristics infrequently reported is counsellor experience. This study has also not addressed this issue, and it would appear to be a variable worthy of further attention.

5.4. Recommendations for further evaluative study

One of the major themes of this dissertation is to stress the importance of evaluation. Leibowitz and Schlossberg (in Hansen, 1981) state: "if a career development program is to win the continued support of organisational decision makers, it must prove its effectiveness. That proof will consist of evaluation data on the outcomes of the program. Though often ignored by program designers, evaluation should be regarded from the outset as an integral part of the program ..." (p.286). At the end of chapter one, a table entitled "Dimensions of clients, treatments, and outcomes" by Fretz (1981), was presented. The writer would recommend that those planning evaluative research keep the factors he enumerates in mind. Thus, it is important to plan for evaluation from the inception of a programme, and to do evaluation on an ongoing basis to inform the programme design. In the study presented in this dissertation, the evaluation was planned after the programme had taken place, thus difficulties were experienced because there was no initial categorising, the tests were not linked to an evaluative method, and criterion measures were difficult to establish. Recommendations to circumvent these difficulties now follow.

5.4.1 A developmental model

To strive towards the use of a developmental assessment model, as proposed earlier, an abridged version of the model presented by Super (1983) will now be presented.

recommended. Such a measure is a valuable record of pre-programme readiness, and may be used again after the programme to evaluate the outcomes of the programme.

It is important to note that a locally standardised instrument similar to those mentioned above, is now available (Langley, 1990).

5.4.3 Interest testing

There is still strong support in the literature for the importance of interest testing. It would seem that the interest questionnaires evaluated by the writer in this study are outdated and difficult to interpret well, or to link to specific occupations.

The writer would recommend the use of instruments which render results which may be coded accurately into the Holland code. The Strong-Campbell Interest Inventory is becoming more accessible to pupils in their matric year, and is such a measure. A further measure is the Self-Directed Search, developed by J.L. Holland initially in 1970, and revised most recently in 1985. The advantage of this test is that it has been adapted for use in South Africa for the Department of Education and Training - ie. the test may be used by African subjects (Bisschoff, 1987).

5.4.4. Intervention for the individual

A recent trend in career counselling literature has been the recognition that "clients with different career choice problems benefit from different types of intervention specific to their needs" (Clarke & Toerien, 1986, p.50). It seems then that no one method is superior to another. Taylor (1985) argues that "it is more important and valuable to examine which type of counselling is effective with which type of client than simply to ask 'Is careers counselling effective'" (p. 166). This indicates the necessity to take the personality characteristics of the client into account. Larsen (1988)

found, when investigating undecided students, that there were multiple subtypes who differed "on several career-planning activities and especially on some problem-solving variables" (p.445).

The above statements are valuable and well-intentioned, but in terms of evaluation research, pose many difficulties. They highlight a problem which Allport (in Goodstein & Lanyon, 1971) says "increasingly haunts us, in our dual roles as experimenter and clinician" (p.95). It is the problem which, in the literature has been called the 'nomothetic and idiographic split', that is "the strain that exists between the demands of conventional scientific method and 'the appreciation of the richness of human individuality'" (Hearnshaw, in *ibid*). In the career counselling situation, the teacher-counsellor needs to develop a balance between using norm-referenced testing and procedures, and subjective and more intuitive approaches. It is important therefore, whilst we search for evaluative techniques which may lead to scientific investigation, to keep the individual in mind; and it is necessary that the need for evaluation is kept in mind when the planning of a programme is done.

It is important to note that certain pupils will respond best to group work and intervention - both time-saving and more cost-effective, whereas others will respond better in individual career counselling. Magee & Pumfrey (1986) report a study by Kivlighan et al. who found that "task-oriented participants were found to learn through a programme of individual problem solving, while the people-oriented participants gained from learning through interaction in group counselling" (p.282). It then follows that teacher-counsellors are recommended to do some form of personality assessment, and to be flexible in their planning, to offer both group and individual opportunities.

To conclude then, the writer hopes that she has presented a scenario of the very real difficulties facing the teacher-counsellor in South African High Schools. Expectations of pupils, parents and the wider community, are often unrealistic, and many varied demands are made. Many teacher-counsellors are doing the best they can, within the limitations of little training, resources and time. There is a great need to improve the quality of service offered and far more research in the area is needed, especially in the South Africa of the 1990's, to lead to more informed decision-making on the part of adolescents, and to contribute more effectively to those experiencing difficulties in this developmental stage.

In the past "career education assumed that children and adolescents could and would process career choice at a rational, logical level... The assumption ... is incorrect. Information by itself will rarely change human behaviour" (Sprinthall & Collins, 1988, p.463). It is necessary to keep in mind the multitude of variables which impact on career decision-making, and to view each pupil holistically, and as an individual.

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APPENDIX A

Dear

Career Counselling

Our school counselling programme includes career counselling. During the Standard 9 year, each pupil writes Aptitude, Interest and personality tests. The pupils are able to discuss the results of these tests in a subsequent interview with the Teacher Counsellor. Indications of career directions are discussed, but the guidance given is not prescriptive. We stress that the decision made by the pupil is his/her own, and the purpose of the interview is to give information to aid in decision making.

Your son/daughter, _____ was seen by the Teacher Counsellor on _____ for a career discussion. Should you wish to discuss his/her career with the Teacher Counsellor, or desire further counselling for him/her, you are welcome to contact the Teacher Counsellor through the school secretary.

Please complete the tear-off slip below.

Yours faithfully

J DE HAAS
TEACHER COUNSELLOR

NAME : _____

I acknowledge receipt of the career counselling letter

I would like further information

I am satisfied that my son/daughter has adequate information

I will be phoning for an appointment with the Teacher Counsellor

SIGNED : _____

Letter to parents after first interview.

Van Surname Smith Voornam First names Juliet Toetsafnemer Tester J.J.W.
 Taal Language Eng Geslag Sex F Maskoole Post-School 10
 Skool/Plek School/Place Girls' High School, Brandburg Ouderdom Age 17 Yrs 3 Mths
 Toetsdatum Testing date 19.7.51 Gebortedatum Date of birth 19.8.14

Toets/Test	Telling/Score		Toetsprofiel/Test profile										Aanleg/Aptitude	Toets Test	Stanine	Gem. Mean		
	Raw	Stanine	1	2	3	4	5	6	7	8	9							
1 Verbale begrip Verbal comprehension	17	5	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
2 Berekeninge Calculations	28	6	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
3 Woordbou Disguised words	23	5	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
4 Vergelyking Comparison	26	8	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
5 Patroonvoltooiing Pattern completion	17	5	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
6 Figuurreeks Figure series	22	6	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
7 Ruimtelik 2-D Spatial 2-D	21	6	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
8 Ruimtelik 3-D Spatial 3-D	18	6	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
9 Geheue (paragraaf) Memory (paragraph)	12	4	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
10 Geheue (simbole) Memory (symbols)	25	6	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
11 Koördinasie Co-ordination	87	6	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
12 Skryfspoed Writing speed	80	8	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Geskatte IK (SAT) Estimated IQ (SAT)													7	→	→	→	→	

Geskatte IK = $\frac{4T1 + 2T3 + 2T5 + T6 + 2T8 + 3T5}{3} - 10A$
 ESTIMATED IQ = $\frac{4(17) + 2(23) + 2(17) + (22) + 2(18) + 3(15) - 10(17,25)}{3}$
 = $\frac{(348)}{3} = 116$



Jung-Persoonlikheidsvraelys
 (JPV)

Jung Personality Questionnaire
 (JPQ)

Handantwoordblad

RGN-HSRC

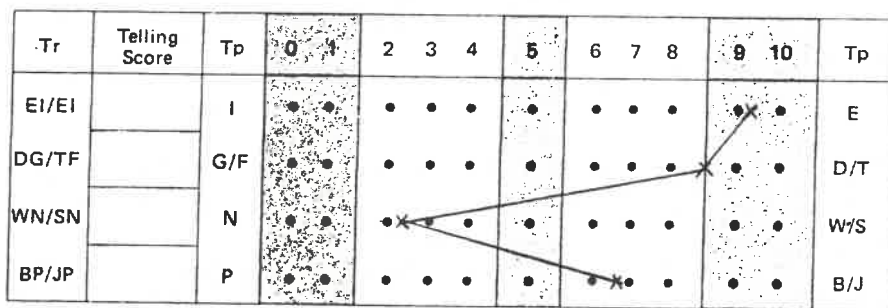
Manual Answer Sheet

B. 3

MOENIE HIERDIE VORM
 VOOR SKEUR OF ANDERSINS
 BESKADIG NIE
 DO NOT FOLD, TEAR OR
 OTHERWISE DAMAGE THIS
 FORM

VAN / SURNAME												VOORLETTERS INITIALS											
ADRES / INSTITUTION												PLEK / PLACE			TOETSAFNEMER / TESTER								
ESLAG / Manlik / Vroulik / EX / Male / Female												TAAL / LANGUAGE			JAAR / YEAR			MAAND / MONTH			DAG / DAY		
Afrikaans <input type="checkbox"/> English <input type="checkbox"/> Xhosa <input type="checkbox"/> Zulu <input type="checkbox"/> N-Sotho <input type="checkbox"/> S-Sotho <input type="checkbox"/> Tswana <input type="checkbox"/> Tsonga <input type="checkbox"/> Venda <input type="checkbox"/> Ander <input type="checkbox"/>												1 9						1 9					
STANDERD / KLAS / STANDARD / CLASS												1 2 3 4 5 6 7 8 9 10			NA SKOOL / AFTER SCHOOL			I II III IV V					
VANDAG SE DATUM / TODAY'S DATE												GEBORTE DATUM / DATE OF BIRTH			OUDERDOM / AGE								

JPV-PROFIEL / JPQ PROFILE



Type/Type: ETN (J) Opmerkings/Remarks: _____

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 Human Sciences Research Council
 Alle regte voorbehou/All rights reserved

- | | | | |
|----------------|----------------|----------------|----------------|
| 1 (A) (B) (C) | 2 (A) (B) (C) | 3 (A) (B) (C) | 4 (A) (B) (C) |
| 5 (A) (B) (C) | 6 (A) (B) (C) | 7 (A) (B) (C) | 8 (A) (B) (C) |
| 9 (A) (B) (C) | 10 (A) (B) (C) | 11 (A) (B) (C) | 12 (A) (B) (C) |
| 13 (A) (B) (C) | 14 (A) (B) (C) | 15 (A) (B) (C) | 16 (A) (B) (C) |
| 17 (A) (B) (C) | 18 (A) (B) (C) | 19 (A) (B) (C) | 20 (A) (B) (C) |
| 21 (A) (B) (C) | 22 (A) (B) (C) | 23 (A) (B) (C) | 24 (A) (B) (C) |
| 25 (A) (B) (C) | 26 (A) (B) (C) | 27 (A) (B) (C) | 28 (A) (B) (C) |
| 29 (A) (B) (C) | 30 (A) (B) (C) | 31 (A) (B) (C) | 32 (A) (B) (C) |
| 33 (A) (B) (C) | 34 (A) (B) (C) | 35 (A) (B) (C) | 36 (A) (B) (C) |
| 37 (A) (B) (C) | 38 (A) (B) (C) | 39 (A) (B) (C) | 40 (A) (B) (C) |
| 41 (A) (B) (C) | 42 (A) (B) (C) | 43 (A) (B) (C) | 44 (A) (B) (C) |
| 45 (A) (B) (C) | 46 (A) (B) (C) | 47 (A) (B) (C) | 48 (A) (B) (C) |
| 49 (A) (B) (C) | 50 (A) (B) (C) | 51 (A) (B) (C) | 52 (A) (B) (C) |
| 53 (A) (B) (C) | 54 (A) (B) (C) | 55 (A) (B) (C) | 56 (A) (B) (C) |
| 57 (A) (B) (C) | 58 (A) (B) (C) | 59 (A) (B) (C) | 60 (A) (B) (C) |
| 61 (A) (B) (C) | 62 (A) (B) (C) | 63 (A) (B) (C) | |
| 64 (A) (B) (C) | 65 (A) (B) (C) | 66 (A) (B) (C) | |
| 67 (A) (B) (C) | 68 (A) (B) (C) | 69 (A) (B) (C) | |
| 70 (A) (B) (C) | 71 (A) (B) (C) | 72 (A) (B) (C) | |
| 73 (A) (B) (C) | 74 (A) (B) (C) | 75 (A) (B) (C) | |

9 1/4 1

8 1/2 2

120 2 1/4 3

6 2/3 4

*

KODUS
-BELANGSTELLINGSVRAELYS
INTEREST QUESTIONNAIRE

Datum/Date _____

Naam Name _____ Geslag Sex F Huistaal Home language _____

Skool/School _____ St./Std _____

Geboortedatum/Date of birth _____ Ouderdom Age 16 Jare Years _____ maande months

Huisadres Home Address _____ Tel No. _____

Werk van Vader Father's occupation _____

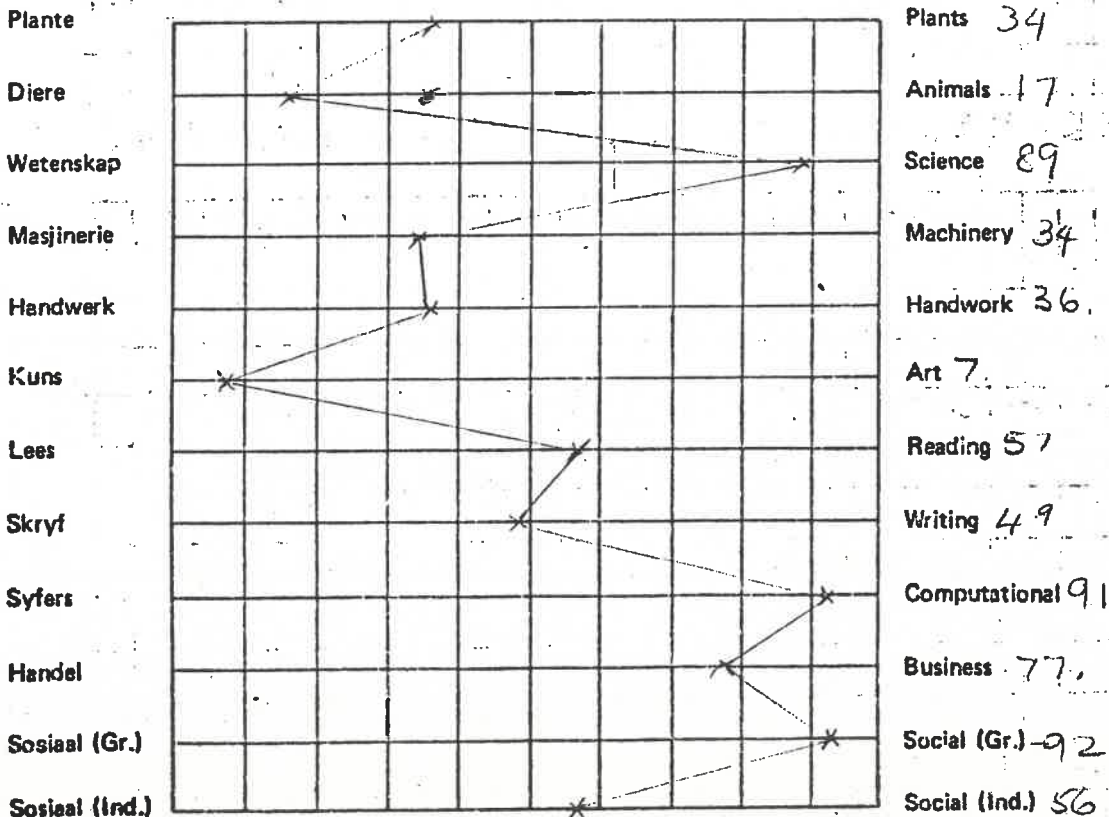
Skoolvakke, in volgorde van voorkeur, met jongste persentasie, simbool of punte in elke vak.
School subjects in order of preference, with latest percentage/symbol or marks in each subject

Is jy van plan om verder te studeer? _____ Waar? Where? _____

Wat wil jy eendag word?/What kind of work would you like to do one day? _____

PROFIEL PROFILE

0 10 20 30 40 50 60 70 80 90 100



Note: This questionnaire was altered to suit the school group better.

B. 5

Crowley Occupational Interests Blank

CRAC

Surname (in block letters)

First names

Today's date

Age in years

Part I Some of the squares below have two jobs in them. Leave the name of the job you prefer and cross out the other.

	1	2	3	4	5
6 ▶	Farm-worker / Framer <input type="radio"/>	Accounts clerk / Accountant <input type="radio"/>	Nurse <input type="radio"/>	Tool maker or Book Caterer <input type="radio"/>	Poster designer <input type="radio"/>
7 ▶	Filing clerk / Computer programmer <input type="radio"/>	Waiter/waitress / Swamp worker <input type="radio"/>	Motor mechanic or Laundry packer biologist <input type="radio"/>	Photographer <input type="radio"/>	Deep sea fisher / Pump attendant Estate agent <input type="radio"/>
8 ▶	Youth club leader / hotelier <input type="radio"/>	Plumber or Slipper maker food technologist <input type="radio"/>	Interior designer or Florist <input type="radio"/>	Forester or Kennel assistant horticulturist <input type="radio"/>	Bank clerk / Banker <input type="radio"/>
9 ▶	Electrical engineer / Electrician or Toy maker <input type="radio"/>	Window dresser <input type="radio"/>	Traffic warden / Air traffic controller <input type="radio"/>	Stores clerk or Typist <input type="radio"/>	Shop assistant <input type="radio"/>
10 ▶	Hairstylist <input type="radio"/>	Sailor or Groom (horses) Nature conservation <input type="radio"/>	Wages clerk personnel manager <input type="radio"/>	Bus conductor / conductress or Teacher <input type="radio"/>	Geologist Welder or Dressmaker <input type="radio"/>

Of all the jobs I have ever heard of, the three I would most like to do are:

- _____
- _____
- _____

(For teacher's use only)

	A/O	OFF	SOC	PRA	ART	Total
Raw score						150
Grade	B	D	A	C	A	-

Of all the jobs I have ever heard of, the three I would really hate to do are:

- _____
- _____
- _____

Notes

1 Iris Road
Hayfields
Pietermaritzburg
3201
15 May 1989

C. 1

Dear

I am writing, with the approval of the Director of Education, to request your assistance with research in which I am presently engaged, to determine the validity of the Schools' Career Counselling programme.

During my time as Teacher-Counsellor at _____ High, I administered a number of HSRC aptitude, interest and personality tests as aids for career counselling. I propose to assess the results of these tests in the light of ex-pupils' current occupations / fields of study.

I thus need access to your test results, which are stored at _____ High. I assure you that these results will be assessed confidentially and in a responsible manner. Names of subjects as well as the school will not be mentioned in the study. Please ask your parents to complete the form at the foot of this page (if you are under 21), or complete it yourself, to give your permission.

The second part of my request is that you complete the attached questionnaire to facilitate the follow-up study. This should not take more than 15 minutes of your time. I would be most obliged if the permission slip and questionnaire could be returned to me in the enclosed envelope.

Your assistance is greatly appreciated. This research project is part of the work I will be submitting for an M.A. (Counselling Psychology) degree and I would be happy to send you a summary of the results, should you be interested.

Yours sincerely

(Mrs) Jackie de Haas

I, _____, give my permission for Mrs de Haas to have access to the results of Careers tests of _____.

Signed: _____ Date: _____

TO: _____ (If your address has changed,
 _____ please write in your new one)

BIOGRAPHICAL AND SCHOLASTIC DETAILS

Date of Birth: _____
 Parents' Occupations: Father _____ Mother _____
 Number and ages of brothers and sisters: _____

Matric pass: with _____ or without _____ matric exemption ?

Symbols of matric examination :

<u>Subject</u>	<u>symbol</u>	<u>grade</u>	<u>Subject</u>	<u>symbol</u>	<u>grade</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

POST-SCHOOL ACTIVITIES

	<u>Military Work & Study service</u>	<u>Unem- ployed</u>	<u>Other/ Specify</u>
What did you do last year?	_____	_____	_____
What are you doing presently?	_____	_____	_____
What do you intend doing next year?	_____	_____	_____

POST-SCHOOL STUDY

If you have studied full-time or part-time since leaving school, please complete the following tables and questions.

<u>Name of institution (university/college)</u>	<u>Courses, eg. BA, NTC 1, diploma, etc</u>	<u>Date</u>		<u>Full-time or part-time</u>	<u>Number of academic years completed</u>
		<u>From</u>	<u>To</u>		
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

If you changed study courses, for what reason was the change made? (eg. Changed from to because)

PLEASE TURN OVER.....

IF WORKING PLEASE COMPLETE THE FOLLOWING TABLE

Job title	Description	Type of organisation (eg. commercial, educational, industrial)	From	To	Reason for changing

INFLUENCES UPON YOUR CAREER DECISION MAKING

Please rate the influence of others on your career decision making when you were in matric, on the following scale:

	Strong influence 5	4	Moderate influence 3	2	No influence 1
Father	___	___	___	___	___
Mother	___	___	___	___	___
Brother	___	___	___	___	___
Sister	___	___	___	___	___
Other relations	___	___	___	___	___
Friends	___	___	___	___	___
Subject teachers	___	___	___	___	___
Teacher counsellor	___	___	___	___	___

Please rate the influence of school results on the same scale:

	5	4	3	2	1
Std 9	___	___	___	___	___
Matric trials	___	___	___	___	___
Matric finals	___	___	___	___	___

Did you go to an agency / counsellor outside of the school system for Career counselling whilst you were in matric? Yes ___ No ___
(Please specify) _____

GENERAL

Please rate your level of satisfaction with what you are presently doing: Very satisfied 5 ___ Moderately satisfied 3 ___ Dissatisfied 1 ___
4 ___ 2 ___

If you were given the option to change your present occupation, what would you choose? _____

Would you be willing to complete a re-test of the 19 Field Interest Inventory (which you did in Std 9)? It would take about 40 minutes, in your own time. Yes ___ No ___

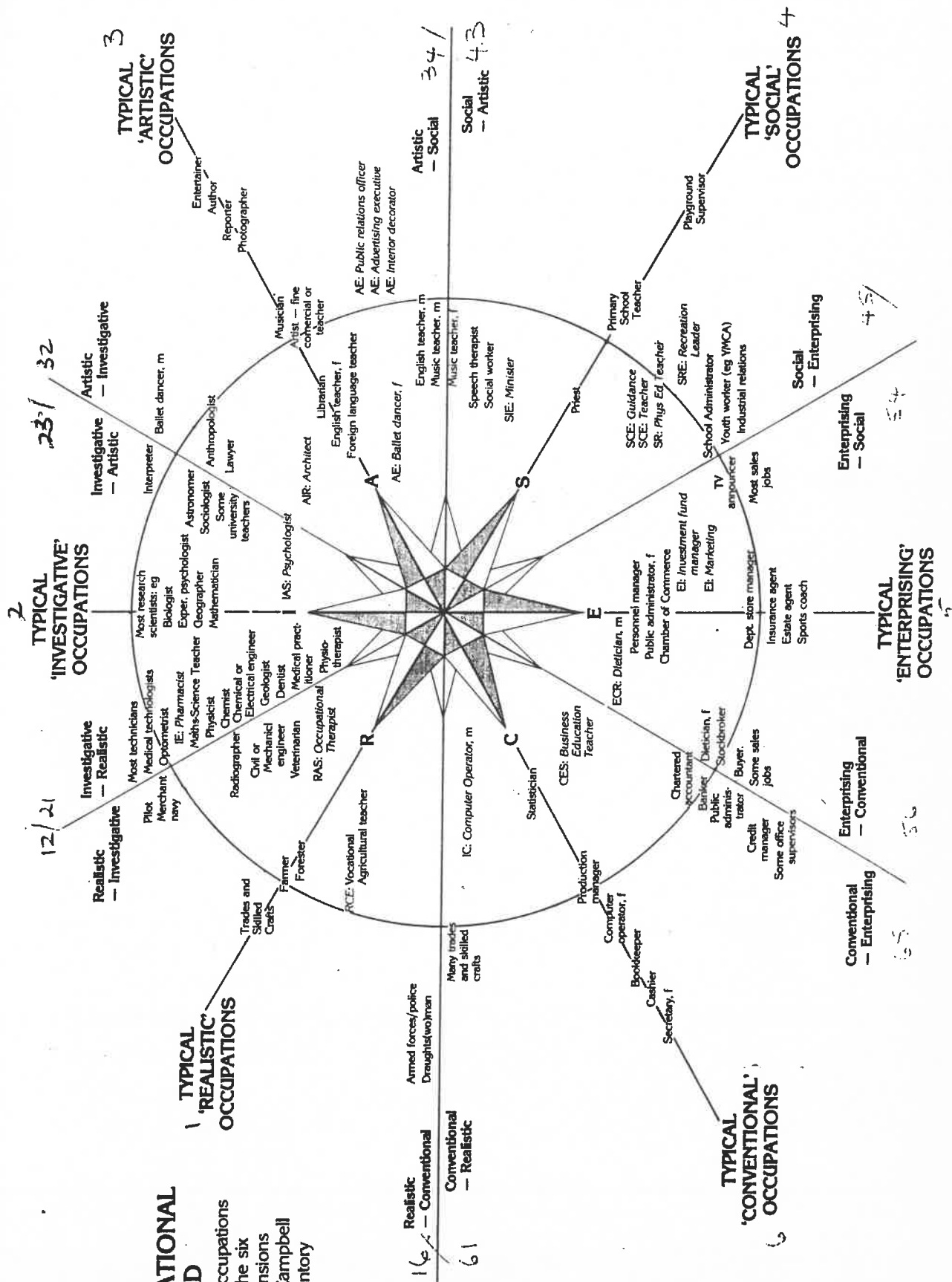
Thank you for your co-operation.



UNDERSTANDING YOUR TEST RESULTS

A MAP OF THE OCCUPATIONAL WORLD

Showing major occupations in terms of the six interest dimensions of the Strong-Campbell Interest Inventory



AGENCY SATISF	1.115	1.000	9.000	49	REALISTIC
A1	1.164	1.000	5.000	49	INVESTIGATIVE
A2	503	0.0	1.000	49	ARTISTIC
A3	551	0.0	1.000	49	SOCIAL
A4	694	0.0	1.000	49	ENTERPRISING
A5	633	0.0	1.000	49	CONVENTIONAL
A6	612	0.0	1.000	34	
R#19F#1	510	0.0	1.000	34	
R#19F#2	324	0.0	1.000	34	
R#19F#3	471	0.0	1.000	34	
R#19F#4	507	0.0	1.000	34	
R#19F#5	529	0.0	1.000	34	
11 JAN 91	504	0.0	1.000	34	
08:24:48	SPSS-X RELEASE 2.0A-UM1.0 FOR SPERRY 1100/70			39R3E	

NUMBER OF VALID OBSERVATIONS (LISTWISE) =	MINIMUM	MAXIMUM	VALID N	LABEL
R#19F#6	118	0.0	34	
MATURITY	1.559	1.000	34	
R#KOD#1	381	0.0	21	
R#KOD#2	429	0.0	21	
R#KOD#3	714	0.0	21	
R#KOD#4	463	0.0	21	
R#KOD#5	463	0.0	21	
R#KOD#6	507	0.0	21	
AGE	238	0.0	21	
ROOS	6.115	192.000	49	
SAT#1Q	3.286	1.000	49	
MISMATCH2	2803631.308	3070108.12	49	
11 JAN 91	1.408	0.0	49	"RAISE" PRE-POST MISMATCH
08:24:48	SPSS-X RELEASE 2.0A-UM1.0 FOR SPERRY 1100/70		39R3E	

PRECEDING TASK REQUIRED 5.86 SECONDS CPU TIME; 7.91 SECONDS ELAPSED.

61 0 PEARSON CORR NVERB#IQ TO FAIL#3 FURTHER TO SATISF

62 0 OPTIONS 5

*****PEARSON CORR PROBLEM REQUIRES 140448 WORDS WORKSPACE *****

PEARSON CORR PROBLEM REQUIRES 140448 WORDS WORKSPACE *****	SAT1	SAT2	SAT3	SAT4	SAT5	SAT6	SAT7	SAT8
11 JAN 91	5278**	5010**	3282	1130	4397**	2902	1422	3006
08:24:57	University of Natal	University of Natal	University of Natal	University of Natal	University of Natal	University of Natal	University of Natal	University of Natal
NVERB#IQ	.8956**	.9201**	.9201**	.9201**	.9201**	.9201**	.9201**	.9201**
VERBL#IQ	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
FULL#IQ	.6556**	.6556**	.6556**	.6556**	.6556**	.6556**	.6556**	.6556**
SAT1	3827**	4870**	4722**	4810**	4810**	4810**	4810**	4810**
SAT2	5010**	5010**	5010**	5010**	5010**	5010**	5010**	5010**
SAT3	3282	4722**	4722**	4722**	4722**	4722**	4722**	4722**
SAT4	1130	1130	1130	1130	1130	1130	1130	1130
SAT5	4397**	4397**	4397**	4397**	4397**	4397**	4397**	4397**
SAT6	2902	2902	2902	2902	2902	2902	2902	2902
SAT7	1422	1422	1422	1422	1422	1422	1422	1422
SAT8	3006	3006	3006	3006	3006	3006	3006	3006

SAT9
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 11 JAN 91
 08:24:59
 University of Natal

VERB#IQ VERBL#IQ FULL#IQ SAT1 SAT2 SAT3 SAT4 SAT5 SAT6 SAT7 SAT8

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FAIL#3	SAT10	INT#IV1	INT#IV2	INT#IV3	INT#IV4	INT#IV5	INT#IV6	INT#IV7	INT#IV8	INT#IV9
0135	1672	0855	2469	2960	0553	2609	3117	0118	0419	0899
0942	1399	1428	0	0440	1214	1802	0725	1509	2581	0811
1086	2004	1628	0114	0266	0631	0546	0479	0764	2581	0811
1178	1587	1534	0621	2252	0931	0346	0779	0601	0779	2428
0493	0419	0190	0544	1267	0056	2287	0714	1275	1422	0118
2614	2923	0197	1544	3500	2861	0658	0714	1275	3036	1108
2835	3158	0899	0870	5062	3756	1629	0638	0023	1717	2801
1658	2302	1658	1877	3075	0187	0739	1507	0023	3036	1313
0651	0112	0290	1197	1456	0773	1305	1291	0304	0356	1313
1230	0016	0527	1615	0171	0271	0645	0304	1234	0685	0647
1106	0594	1028	0615	0310	0688	0680	0220	1319	0401	0471
1388	1546	1639	2202	1823	0473	0680	0059	1519	0401	0471
1519	1519	1076	0044	1823	0473	0680	2130	0870	2418	1280
1502	2148	1639	0044	1823	0473	0680	1720	0299	2418	1280
1072	1589	1453	0930	2817	0854	1404	1712	0179	2054	0878
				1496	1667	2086	1512	2449	1793	0634

* - SIGNIF. LE .001 ** - SIGNIF. LE .001 " . " IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED
 -1 JAN 91 SPERRY 1100 FOR SPERRY 1100/70 39R3E
 08:25:01 University of Natal

VERB#10	SAT9	SAT10	INT#IV1	INT#IV2	INT#IV3	INT#IV4	INT#IV5	INT#IV6	INT#IV7	INT#IV8	INT#IV9
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5029	3595	0662	0163	0282	0218	1711	1539	1367	2842	4380	
4334	3934	1862	0562	2823	0971	1184	1880	1807	1165	3798	
3151	2024	1862	0596	3912	0971	0665	1040	0795	1775	2690	
1918	4522	3980	1865	0904	3186	0299	0149	0371	1775	0471	
2888	1588	0330	0036	1752	0942	1704	0411	1904	2510	2792	
1493	2659	2258	1166	0058	0876	5867	1424	1022	1058	1176	
2988	2073	0399	0689	2396	1337	1428	0330	1238	2804	2499	
1443	1443	0374	1107	0893	1337	1428	0494	0494	1660	2115	
0693	1443	0189	1107	0323	0493	1428	0095	1894	1140	2225	
3682	3682	1417	0423	1002	0392	1833	0095	1224	0314	0380	
1417	2559	2359	0577	1796	0083	2856	3532	1602	3302	4374	
1796	0977	2140	2140	0976	4656	1436	1554	1737	1565	3143	
0083	0977	6745	1000	3841	2537	2792	0879	1504	2448	2751	
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1165	0225	3436	2792	4368	1000	1510	0986	2096	5059	2979	
0225	1737	1554	0679	0986	1000	4209	0324	0261	5265	0596	
3302	1565	2446	2098	2096	0324	4209	4200	4534	0041	0596	
4374	3143	2446	2098	2096	0324	4209	4200	4534	1021	1583	
3143	3143	2751	2751	5059	5265	0041	1021	2225	0000	2859	
0080	1170	4224	1804	5167	1126	0596	1583	2225	1000	3700	
0929	1466	3267	3192	0664	0044	0618	0429	3782	0000	3700	
1265	0861	2099	0263	1053	0044	0574	0729	0470	3945	3987	
0868	0311	1094	0263	1053	0141	3347	0267	0755	1313	3140	
2071	0947	0266	4037	3162	1676	3359	2339	4333	0517	0075	
2723	0644	2267	3940	1768	0037	6016	2175	3358	3562	1844	
1626	3180	0632	3951	1446	0653	1453	2570	0736	1854	4429	
2406	2551	1556	1775	2264	1284	2896	0056	0984	1914	4082	
1067	1307	4651	1205	3502	2262	2277	1764	0570	2547	1001	
		1031	4556	2152	1731	4510	0839	0061	4276	0790	
					2282	2941	1188	2084	2890	2970	

DATE 011191

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VERBL#10	FULL#10	SATI#1	SATI#2	SATI#3	SATI#4	SATI#5	SATI#6	SATI#7	SATI#8	SATI#9	SATI#10	SATI#11	SATI#12	SATI#13	SATI#14	SATI#15	SATI#16	SATI#17	SATI#18	SATI#19	SATI#20	SATI#21	SATI#22	SATI#23	SATI#24
4357*	1949	0170	1289	2859	0783	1649	1614	0545	0113	0338															
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2797	0331	0149	0425	2092	0929	2008	0140	1206	0826	1227															
3795	0310	2559	2148	5069*	0689	2048	0418	1446	1446	0822															
1314	0352	0049	0328	0765	3021	0783	0900	1498	2466	2222															
2052	0029	2746	0528	4139*	1549	1353	1470	2247	2761	2703															
5414	0449	1024	0048	4267**	1234	0976	0946	0733	0190	3373															
3389	1866	3005	0048	6538**	1234	1320	0631	0747	0716	1928															
2091	2402	0948	1140	4508**	2373	1123	2631	0402	1584	1626															
5202**	0080	0826	1539	3221	1517	0935	2071	1101	1101	1584															
1696	1170	1085	0466	0861	0311	0260	0967	2113	1626	3180															
4224*	4221	3267	2499	1265	1517	2658	0930	3951**	0632	0632															
1804	3743	3130	3692	0283	4037*	1489	3943	2372	1775	1775															
1126	2693	0664	1055	0283	0162	0671	1768	1481	1472	1472															
0699	0618	3574	4347*	1676	1227	6016**	1453	2896	2277	2277															
3429	0470	0729	2467	2339	3358	0736	2770	0244	1764	1764															
3782	0470	0729	4333*	0146	3358	0736	2770	0244	0570	0570															
3945**	3140*	0075	0517	0323	3562*	1108	1854	0672	2547	2547															
5987**	4884*	0075	0517	5192**	3677	0826	4474*	2284	0101	0101															
0080	1171	1171	0812	0809	4279*	0826	4474*	2284	0544	0544															
0812	1171	1171	0812	0809	4279*	0826	4474*	2284	2407	2407															
5145**	1913	4526*	1.0000	1.0000	1201	0283	2062	5610**	3691	3691															
4279*	5192**	0809	1.0000	1.0000	0067	0662	1438	1601	2029	2029															
0824	0824	0283	0662	3313	3313	1079	4314*	1496	2118	2118															
4674*	2487	0283	0662	3313	3313	1079	4314*	1496	0872	0872															
0619	2487	0283	0662	3313	3313	1079	4314*	1496	0329	0329															
0344	2487	0283	0662	3313	3313	1079	4314*	1496	1.0000	1.0000															
3687	2487	0283	0662	3313	3313	1079	4314*	1496	0574*	0574*															
2895	2487	0283	0662	3313	3313	1079	4314*	1496	1.0000	1.0000															
0903	4425	1397	3691	1476	3582	1171	0000	2291	0747	0747															
4625	4425	1397	3691	1476	3582	1171	0000	2291	1615	1615															
4471	4471	0050	5941	1770	0722	2021	0213	1793	2549	2549															
1004	1004	0020	3822	0595	1397	4903*	0258	2798	5587	5587															
0685	0047	0020	3822	0595	1397	4903*	0258	2798	3307	3307															
1696	0821	1519	3593	3311	1337	3321	0651	2249	3161	3161															
2080	0821	1519	3593	3311	1337	3321	0651	2249	0012	0012															
5080	4582	0981	2493	2142	2206	1765	5448*	1339	0765	0765															
2748	1980	1724	2253*	2620*	0134	0947	2113	0015	1848	1848															
		3401	0528	2759	1497	1794	0302	0765																	

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 ** - SIGNIF. LE .001 SPERRY 1100/70 39R3E
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KODUS#5	KODUS#6	KODUS#7	KODUS#8	KODUS#9	KODUS#10	KODUS#11	KODUS#12	CROWL#1	CROWL#2
3830	1380	3630	3878	2202	1531	0566	0156	0917	0306
2988	1326	4542	2404	3902	1372	0926	1732	1241	0405
1571	1083	0061	2223	0080	0906	0288	0114	1659	0405
5497*	3250	3149	0743	4291	0597	1491	0755	0834	0635
1515	0558*	0622	0798	8526**	1570	1752	3157	0834	2307
0278	0513	2065	1791	1645	4800	0669	5832*	1684	0426
0390	3818	2664	1617	2512	0234	1905	3471	0837	1677
0390	3010	3283	0020	0779	0384	1905	1737	1307	0492
1303	0697	3424	2582	1198	0882	4002	0258	2784	1721
				3483	0991	1078	2175	0611	1671

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VERBL#10	FULL#10	SATI#1	SATI#2	SATI#3	SATI#4	SATI#5	SATI#6	SATI#7	SATI#8	SATI#9	SATI#10	SATI#11	SATI#12	SATI#13	SATI#14	SATI#15	SATI#16	SATI#17	SATI#18	SATI#19	SATI#20	SATI#21	SATI#22	SATI#23	SATI#24
1219	2655	1210	0579	0818	1362	2140	2873	0630	0111	0306	0405	0635	2307	0426	1677	0492	1721	1671							

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CROWL#3
 CROWL#4
 CROWL#5
 SEX
 FATHER
 MOTHER
 PETS
 FAIL#1
 FAIL#2
 FAIL#3
 FURTHER#1
 FURTHER#2
 INFLUENCE#1
 INFLUENCE#2
 INFLUENCE#3
 INFLUENCE#4
 INFLUENCE#5
 INFLUENCE#6
 INFLUENCE#7
 INFLUENCE#8
 STD#9
 TRIALS
 FINALS
 AGENCY
 SATISE

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 SPSS-X RELEASE 2.0A-UMI.0 FOR SPERRY 1100/70 39R3E
 University of Natal

PEARSON CORRELATION COEFFICIENTS

INT#IV21	JUNGI	JUNG2	JUNG3	JUNG4	KODUS#1	KODUS#2	KODUS#3	KODUS#4	KODUS#5	KODUS#6
.0375	.1357	.0076	.0079	.0123	.1184	.2019	.0914	.2611	.3084	.3911
.2689	.2783	.0759	.0610	.0791	.1662	.0511	.0377	.1833	.2201	.1571
.0908	.0852	.0583	.0279	.0516	.1632	.2149	.0350	.2484	.0612	.7811
.2525	.2077	.1259	.0655	.1178	.1013	.1986	.0149	.2277	.4117	.1847
.0501	.3461	.1358	.1200	.0090	.1021	.0541	.1614	.0787	.0067	.1575
.1420	.1629	.0582	.0661	.1414	.1237	.0508	.1896	.1081	.1298	.1064
.2658	.0801	.0589	.1130	.0662	.1708	.4708	.1421	.3147	.4658	.1502
.1729	.0466	.1989	.2088	.0453	.2120	.1062	.0695	.0985	.2855	.0576
.3737	.0256	.1971	.2384	.0453	.1899	.4650	.4816*	.0946	.6196**	.1875
.3382	.1380	.2964	.1821	.0126	.2570	.0500	.0393	.0946	.0260	.2604
.2261	.2406	.1067	.0778	.0827	.1833	.2922	.0656**	.0935	.2335	.1409
.2261	.2551	.1307	.3277	.0386	.0609	.2122	.6312**	.2463	.2436	.2932
.0927	.4651	.1031	.4319	.0386	.1031	.2554	.3578**	.2631	.0329	.0444
.0127	.1205	.4156	.0193	.0787	.4107	.3396	.2062	.1168	.0125	.5602*
.2262	.1702	.2282	.1637	.0533	.2087	.1137	.1173	.0146	.3086	.0697
.0789	.4518	.2941	.3473	.0580	.0740	.1414	.2307	.4334	.4021	.2978
.0801	.4143	.1188	.0622	.0311	.1453	.3414	.3685	.1484	.4081	.0971
.4276	.0423	.1884	.0607	.0117	.0333	.0448	.3578	.1468	.4652	.3235
.0790	.0693	.2890	.0616	.0471	.0859	.3002	.1913	.0568	.0077*	.1277
.4125	.0505	.2970	.0600	.3550	.1249	.4671	.1913	.0478	.6007*	.1791
.0907	.3687	.4534	.0413	.0685	.1896	.1384	.1664	.2139	.3830	.2544
.1397	.0050	.4719	.1004	.0047	.0821	.2026	.4582	.2748	.3830	.2588
.0291	.1594	.3822	.0686	.3593	.2806	.0981	.1725	.1980	.1380	.1328
										.4542
										.0404

INT#IV14	1770	0595	3331	2611	0789	2419	2142	5620*	2759	2202	3906
INT#IV15	0725	1397	2982	1659	1337	2206	1758	0934	1497	1531	1372
INT#IV16	2021	4903*	2321	1774	3854	2390	1765	0947	1794	0566	0926
INT#IV17	0213	0366	4321	0651	4373	1892	5448*	2113	0302	0156	1732
INT#IV18	1519	0739	4211	2015	2476	3599	0754	1111	1848	0672	1659
INT#IV19	0747	0535	1793	2299	0849	1727	1339	0012	0765	0917	1241
INT#IV20	0747	1615	0749	5587	0578	3309	3161	0021	0765	0405	1040
INT#IV21	10000	0443	0747	2762	1415	1302	4720	3279	1717	0306	0801
JUNG1	0443	3544	4731*	3951	4731*	5620	1321	2879	1416	0328	0323
JUNG2	1639	3044	10000	2177	1785	5620	0914*	0394	3038	3744	0323
JUNG3	2762	3951	10000**	0819**	5819**	0919	0931	0485	3201	0991	0323
JUNG4	4731*	4731*	10000	0819	10000	0919	0931	0485	3201	0991	0323
KODUS#1	5620	5620	5620	5620	5620	5620	5620	5620	5620	5620	5620
KODUS#2	4731*	4731*	4731*	4731*	4731*	4731*	4731*	4731*	4731*	4731*	4731*
KODUS#3	0931	0931	0931	0931	0931	0931	0931	0931	0931	0931	0931
KODUS#4	0931	0931	0931	0931	0931	0931	0931	0931	0931	0931	0931
KODUS#5	0931	0931	0931	0931	0931	0931	0931	0931	0931	0931	0931
KODUS#6	0931	0931	0931	0931	0931	0931	0931	0931	0931	0931	0931

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INT#IV21	JUNG1	JUNG2	JUNG3	JUNG4	KODUS#1	KODUS#2	KODUS#3	KODUS#4	KODUS#5	KODUS#6
0628	3744	0991	2669	4340	0876	0632	2595	1769	10000	2116
0667	2226	0333	4625	6861*	0924	1122	3498	0752	2116	10000
0823	4723	2419	0359	2397	2094	0151	4537	6103**	2728	1517
0713	1043	3275	2707	0421	2261	0569	4145	6939**	3741	3519
0403	1433	3133	0044	0722	0741	1057	5111*	3926	0197	4367
0118	0477	2714	0035	1912	0882	4701	0521	0363	1638	3880
4424	1359	4033	4159	2356	0972	4701	0884	2879	4466	0673
3444	1436	3232	0062	2411	0938*	1419	2699	2311	1861	4084
1213	0909	0516	3909	2858	0587	2259	1564	2103	2461	0540
1362	1666	4103	1789	0334	0241	2370	0888	1469	1368	3186
1395	1141	4217	0618	4044	0613	2905	0227	1422	1659	7200**
2227	0594	2304	1328	2734	1483	0217	0927	2479	1794	3131
3008	2354	1711	0148	1627	0217	2678	0077	1619	2883	0247
1041	1293	0295	0371	0004	1380	2254	0297	2397	3567	0751
2169	0678	0890	0228	0035	3073	0115	0873	0040	3974	3560
1049	0201	0870	0176	2141	0071	0954	3668	0698	2648	1635
1289	1179	0845	0538	0220	0046	1322	3834	0853	3853	2048
1041	0921	0840	1822	0054	1282	1240	1346	1524	3139	2218
0718	0302	1972	1644	0408	3949	0318	2915	0177	1453	0078
2488	1701	1701	1820	0472	0735	5691*	1021	0809	1418	1687
3011	0651	0822	4243*	3686**	1059	0753	6209**	2261	1603	0524
1733	1162	1330	1530	2181	2039	3815	1029	0519	1342	3806
1085	2173	1096	2617	2847	2077	4469	5113	0522	2220	3447
1554	0919	1960	2556	2460	2110	4056	1013**	0522	1371	3447
2240	2862	0471	1136	1489	1420	0068	0376**	1472	1441	0663**
2909	2861	0471	1136	1489	2379	0112	1249	3576	1441	6300**
5442**	0358	1599	2283	1522	2672	2697	1010	0104	0958	3581
0936	1605	0949	1258	3410	0801	3178	1506	0255	4701	0500
0756	1205	1010	1406	2041	3869	0353	1228	0232	0965	0672
0756	1091	1018	0538	1056	4474	0303	3616	0679	0425	1181
			1140	2406	0844	1801	1011	1389	1485	0855
								1901	3979	1255

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ODUS#5	1559	1042	1559
ODUS#6	7200**	3186	7200**
ODUS#7	0560	2786	0560
ODUS#8	1001	0524	1001
ODUS#9	1468	0424	1468
ODUS#10	2856*	6665*	2856*
ODUS#11	2088	2344	2088
ODUS#12	2179	0106	2179
BROWL#1	3954*	3954*	3954*
BROWL#2	2186	1795	2186
BROWL#3	0902	6936**	0902
BROWL#4	4214*	10000	4214*
BROWL#5	10000	6759**	10000
SEX	10000	10000	10000
MOTHER	5970**	5970**	5970**
FATHER	1732	2189	1732
TEXP	2627	1828	2627
TEXTS	2856*	1858	2856*
MAIL#1	2309	1857	2309
MAIL#2	1291	1261	1291
MAIL#3	1626	1157	1626
FURTHER	4767	0511	4767
INFLUE#1	0291	0691	0291
INFLUE#2	1475	1240	1475
INFLUE#3	0118	2318	0118
INFLUE#4	3444	1785	3444
INFLUE#5	3431	2664	3431
INFLUE#6	3063	1505	3063
INFLUE#7	2122	2154	2122
INFLUE#8	1724	0644	1724
STID#9	0973	0611	0973
TRIALS	2228	0123	2228
FINALS	1407	0582	1407
AGENCY	5381*	1891	5381*
SATIS	4455	0478	4455

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NVERB#10	1178	1086	1178
VERB#10	1587	2004	1587
FULL#10	1534	1675	1534
SATI	0621	0114	0621
SATI2	2252	2252	2252
SATI3	0093	0631	0093
SATI4	0368	0546	0368
SATI5	0118	0479	0118
SATI6	0601	0764	0601
SATI7	0173	0775	0173
SATI8	2428	0518	2428
SATI9	0324	0552	0324
SATI10	0534	0825	0534
INT#IV1	0387	0775	0387
INT#IV2	1470	2930	1470
INT#IV3	0437	1436	0437

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PEARSON CORRELATION COEFFICIENTS

FAIL#1 FAIL#2 FAIL#3 FURTHER INFLUE#1 INFLUE#2

EXEMP PTS

FATHER MOTHER

SEX

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INT#IV4	INT#IV5	INT#IV6	INT#IV7	INT#IV8	INT#IV9	INT#IV10	INT#IV11	INT#IV12	INT#IV13	INT#IV14	INT#IV15	INT#IV16	INT#IV17	INT#IV18	INT#IV19	INT#IV20	INT#IV21	JUNG1	JUNG2	JUNG3	JUNG4	KODUS#1	KODUS#2	KODUS#3	KODUS#4
.3038	.3131	.1189	.0792	.0604	.1586	.2806	.3158	.0836	.2357	.1159	.1010	.0946	.0552	.2552	.0108	.2227	.2254	.2390	.1677	.0217	.2678	.0077	.1619		
.0647	.3591	.1270	.0877	.1385	.0967	.1970	.0814	.2223	.0449	.1477	.4296*	.1382	.0598	.0590	.0921	.3000	.1711	.0465	.0164	.1380	.2254	.0077	.1619		
.4812*	.1323	.4423*	.0739	.0614	.0691	.1094	.0814	.0553	.0449	.1477	.4296*	.1382	.0598	.0590	.0921	.3000	.1711	.0465	.0164	.1380	.2254	.0077	.1619		
.3462	.1915	.0625	.1845	.4009*	.2431	.2916	.1860	.3169	.0470	.0324	.1553	.1534	.0819	.0839	.0550	.1617	.0841	.0878	.0352	.0004	.0773	.0115	.3668	.0698	
.2372	.3388	.1508	.0969	.4447*	.4052	.5021*	.2414	.0093	.0942	.2385	.2947	.1824	.1127	.1361	.2167	.0890	.0878	.0352	.0004	.0773	.0115	.3668	.0698		
.0483	.1557	.0320	.0000	.3062	.2685	.2524	.1454	.1151	.2251	.2004	.1564	.0019	.1096	.3218	.3107	.0000	.0201	.0545	.0538	.0220	.0046	.1322	.3834	.1524	
.0358	.1506	.0819	.1374	.1610	.1591	.0187	.3442	.2625	.0175	.1205	.1893	.2008	.0640	.0608	.1142	.3650	.1179	.0840	.1822	.0054	.1282	.0240	.1346	.0177	
.0872	.2445	.0914	.0669	.1610	.1569	.1130	.1942	.2408	.0586	.0882	.2999	.2268	.2613	.1507	.1581	.2591	.1041	.0718	.1637	.1701	.1100	.3949	.5681*	.1021	.1273

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SEX	FATHER	MOTHER	EXEMP	PTS	FAIL#1	FAIL#2	FAIL#3	FURTHER	INFLUE#1	INFLUE#2
.1794	.2883	.3567	.3974	.2648	.3853	.3139	.1453	.1418	.1687	.1603
.3131	.0247	.0751	.3560	.1635	.0526	.2048	.2218	.0078	.0524	.1342
.1570	.1089	.1485	.0078	.0884	.1291	.1114	.1626	.4078	.0291	.1475
.0687	.0531	.0500	.2259	.0884	.1438	.3704	.4215	.0455	.1485	.1304
.3173	.1843	.0581	.0991	.3338	.0714	.2906	.3135	.1471	.2082	.3351*
.2128	.0562	.2614	.2495	.0238	.0236	.0005	.2055*	.4094	.0638	.2592
.0800**	.0134	.0103	.1603	.1736	.0057	.5760*	.5977*	.2000	.1799	.2084
.5534**	.1530	.0108	.3107	.0397	.2728	.2558	.1356	.2524	.0180	.3870*
.0379	.0649	.2398	.1204	.1823	.1218	.0805	.1258	.1677	.0841	.1773
.5328**	.0337	.0296	.1138	.0324	.1269	.0791	.0467	.0743	.0628	.0719
.6759**	.2189	.0995	.1323	.0729	.2921	.3070	.0511	.0044	.1216	.1240
.5700**	.2189	.1284	.1858	.1857	.1261	.1157	.0511	.0044	.1216	.1240
.0000	.1854	.2627	.2856	.2309	.1261	.1419	.1040	.0044	.1216	.1240
.1854	.0000	.1746	.2564	.1491	.2189	.2082	.2321	.2659	.2406	.3182
.12564	.1642	.1041	.1642	.0781	.0831	.0247	.0637	.1521	.2406	.3182
.1489	.1642	.1041	.1642	.0781	.1677	.0247	.0637	.1521	.1665	.0331
.2189	.0831	.1041	.1575**	.5575**	.1510	.2082	.2821	.0651	.0850	.0260
.0831	.1041	.1041	.5575**	.0000	.0000	.2082	.2821	.1094	.0050	.1240
.0343	.0721	.1647	.1510	.0000	.1000	.2082	.2821	.0695	.0848	.1126
.1521	.0637	.0721	.2082	.1712	.1886	.1886	.3367**	.2436	.0848	.1126
.2406	.1272	.0651	.1094	.0695	.2436	.0667	.0000	.0657	.2837	.1927
.3974*	.0331	.1651	.0050	.0142	.0848	.2837	.2503	.1000	.2854	.1619
.2822	.1388	.0715	.1240	.0566	.1001	.1927	.2854	.2854	.5639**	.2000
			.2016		.0339	.1323			.4236*	.4206*

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PEARSON CORRELATION COEFFICIENTS
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	INFLUE#3	INFLUE#4	INFLUE#5	INFLUE#6	INFLUE#7	INFLUE#8	STD#9	TRIALS	FINALS	AGENCY	SATISF
KODUS#4	.0557	.0522	-.1472	-.3576	.0104	.0728	.0255	.0232	-.0679	.1389	-.1901
KODUS#5	-.2220	-.1371	-.3097	.1441	-.0958	.0504	.4700	-.0965	-.0425	1485	-.3979
KODUS#6	.3806	.3447	.0663	.6300**	.3282	.3681	-.0501	.0762	-.1181	.0855	-.1255
KODUS#7	.0118	.1744	.3431	.3063	.2122	.1724	-.0973	.2228	-.1407	.5381*	.4455
KODUS#8	.3027	.1946	.2814	.3656	.3566	.3326	.0804	.0713	.2170	.0833	-.1134
KODUS#9	.0425	.3019	.5051*	.4808	.3811	.4722	.0768	.0704	.0320	.1691	-.2111
KODUS#10	.0716	.3691	.1108	.1725	.2088	.2608	-.1016	.1764	.0819	.2334	-.1445
KODUS#11	.3824	.2580	.0665	.4032	.2459	.0179	.0039	.0008	.0708	.0789	-.0019
CROWL#1	.0522	.0775	.0163	.0656	.0656	.0694	.2307	.1558	.0679	.1246	-.3425
CROWL#2	.2222	.0671	.0364	.2444	.2862	.1240	-.3407	.2415	-.3462	.0857	-.1001
CROWL#3	.0738	.0650	.1707	.1238	.0289	.1478	.3486	.2879	.2131	.0206	-.1520
CROWL#4	.1785	.2664	.1505	.1848	.1453	.0726	.1268	.0976	.0058	.0478	-.0001
CROWL#5	.1756	.2254	.0892	.1434	.1434	.0644	.1650	.0582	.1891	.0478	-.0167
SEX	.2822	.1779	.0637	.3093	.2366	.0611	.0123	.0715	.2482	.1560	-.0417
FATHER	.1388	.0611	.0337	.3532*	.3202	.0324	.4158*	.1954	.2963	.2210	-.1516
MOTHER	.0713	.2437	.2880	.1201	.0042	.0591	.2352	.2587	.2615	.0658	-.0736
PTS	.0566	.4578*	.1188	.2371	.0315	-.0047	.0883	.1073	.0999	.2116	-.0246
FAIL#1	.0339	.1126	.2340	.0461	.0329	.0461	.2082	.1770	.2986	.0084	-.0242
FAIL#2	.1323	.0373	.0288	.0738	.0484	.0336	.2059	.0699	.0647	.1389	-.0073
FAIL#3	.0498	.0464	.0514	.0758	.2796	.1118	.0610	.0577	.0740	.0760	-.1308
FURTHER	.2246	.0315	.1188	.0705	.2371	.2400	.1931	.0257	.1780	.0971	-.2054
INFLUE#1	.4236*	.3474	.2702	.0462	.4068*	.1603	.6303**	.0690**	.0449	.3947*	-.2838
INFLUE#2	.4200*	.4638**	.5906	.1848	.3515*	.2944	.3974*	.5500**	.2554	.1332	-.3544*
INFLUE#3	1.0000**	.6988**	.2818	.3715	.3515*	.2744	.3974*	.3776*	.3050	.1332	-.2152
INFLUE#4	.2818	.4507*	.4507*	.3231	.3149	.1463	.0853	.1522	.0513	.0083	-.1097
INFLUE#5	.3715	.4507*	1.0000**	.3231	.4168	.2101	.1729	.2678	.1908	.0315	-.1157
INFLUE#6	.3715	.3231	.2139	.2396	.2396	.2151	.0587	.2550	.2096	.0315	-.0230
INFLUE#7	.3149	.4168	.2139	.3597*	.3597*	.0611	.0587	.0418	.0248	.0148	-.0449
INFLUE#8	.1463	.2101	.2139	1.0000**	1.0000**	.5610**	.2528	.3764*	.0248	.0148	-.0449
STD#9	.0853	.1729	.2151	.3610**	.3610**	.1.1069	.1.069	.3764*	.3744*	.0980	-.2068
TRIALS	.0522	.2678	.2096	.2528	.2528	.1.1069	1.0000**	.3031	.4082*	.0568	-.1235
FINALS	.0513	.1908	.2096	.3764*	.3764*	.4082*	.6166**	.6166**	.3348	.0441	-.3599*
AGENCY	.0513	.1908	.2096	.3764*	.3764*	.4082*	.6166**	1.0000**	.6753**	-.0173	-.3599*
SATISF	.0042	.0315	.0342	.0248	.0248	.4082*	.3348	.6753**	1.0000	.0580	-.2719
SATISF	-.1097	-.1157	-.0230	-.0148	-.0268	.0568	-.0441	-.0173	-.0580	1.0000	1.0000

* - SIGNIF. LE .01 SPSS-X RELEASE 2.0A-UW1.0 FOR SPERRY 1100/70 39R3E
 11 JAN 91 University of Natal
 08:25:33

PRECEDING TASK REQUIRED 51.75 SECONDS CPU TIME; 44.83 SECONDS ELAPSED.

PEARSON CORR NVERB#IG TO FULL#IG SEX PTS TO FAIL#3 STD#9 TO FINALS
 OPTIONS 5
 MATURITY AGE

*****PEARSON CORR PROBLEM REQUIRES 4368 WORDS WORKSPACE *****

11 JAN 91 SPSS-X RELEASE 2.0A-UW1.0 FOR SPERRY 1100/70 39R3E
 08:25:35 University of Natal

VERB#IQ	VERBL#IQ	FULL#IQ	SEX	PTS	FAIL#1	FAIL#2	FAIL#3	STD#9	TABLES	FINALS
1.0000	.6556**	.8956**	1295	.4175**	-.0652	0.0	-.0135	.1106	.588	-.0145
.8556**	.9201**	.7201**	1161	.5989**	-.3036	.2954	-.1672	.0599	.546	-.1519
.1106	1.0000	1.0000	1339	.5552**	-.2135	.1680	-.0855	1.028	.139	-.1076
1.295	1.1339	1.1339	1491	.1491	-.2189	.2082	-.0343	.2552	1.054	-.2963
.4175*	.5989**	.5552**	1491	1.0000	-.0481	.2054	-.1712	.2082	.1770	-.3042
0.0	.3036	.2135	2189	-.0481	1.0000	-.0610	-.2367	.0610	.0657	-.0647
.0135	.2954	.1680	2082	-.2054	1.0000	-.0610	1.0000	1.0000	1.0000	1.0000
.1106	.1672	.0855	0343	-.2054	-.2367	.0610	1.0000	1.0000	.6166**	-.3348
.1388	.1639	.1639	2352	.1770	-.0699	.0699	-.0257	.0257	1.0000	1.0000
.0145	.1519	.1076	2963	.3042	.0647	.1740	-.0980	.3348	.6753**	1.0000
.072	.1589	.1453	1516	.0042	-.1307	-.1008	-.2054	.3574*	.3999**	-.2719
.2826	.3860	.3555	2271	-.1737	-.1547	.0514	-.0186	.1448	.5949**	-.6170**
.3544*	-.4540**	-.4457**	0072	.4368*	.1054	-.1808	-.0600	.0547	-.0514	-.1916

* - SIGNIF. LE .01 ** - SIGNIF. LE .001 " . " IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED
 11 JAN 91 SPSS-X RELEASE 2.0A-UW1.0 FOR SPERRY 1100/70 39R3E
 08:25:35 University of Natal

VERB#IQ	VERBL#IQ	FULL#IQ	SEX	PTS	FAIL#1	FAIL#2	FAIL#3	STD#9	TABLES	FINALS
.1072	.2826	-.3544*								
.1589	.3860	-.4540**								
.1453	-.3555	-.4457**								
.1516	-.2271	.0072								
-.0073	-.1737	-.4368*								
-.1307	.1547	.1808								
-.1008	.0535	-.1808								
.2054	.0186	.0600								
.3574*	.1448	.0547								
.3999**	.5949**	.0514								
.2719	.6170**	-.1916								
1.0000	.0656	-.1162								
.0656	1.0000	.0454								
-.1162	-.0454	1.0000								

* - SIGNIF. LE .01 ** - SIGNIF. LE .001 " . " IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED
 11 JAN 91 SPSS-X RELEASE 2.0A-UW1.0 FOR SPERRY 1100/70 39R3E
 08:25:36 University of Natal

PRECEDING TASK REQUIRED 1.80 SECONDS CPU TIME; 2.44 SECONDS ELAPSED.
 66 0 CROSSTABS VARIABLES=ROOS(1,6) RAISE#1 TO RAISE#6 A1 TO R#19F#6 (0,1)
 67 0 MATURITY (1,2) R#KOD#1 TO R#KOD#6 (0,1) / TABLES= RAISE#1 TO R#19F#6
 68 0 MATURITY R#KOD#1 TO R#KOD#6 BY ROOS
 69 0 STATISTICS 1
 INTEGER CROSSTABS NEEDS 656 WORDS OF MEMORY.
 THERE ARE 98492 WORDS OF MEMORY AVAILABLE
 THE LARGEST CONTIGUOUS AREA HAS 98492 WORDS.
 11 JAN 91 SPSS-X RELEASE 2.0A-UW1.0 FOR SPERRY 1100/70 39R3E
 08:25:37 University of Natal

----- CROSS TABULATION OF -----

(d) Kind of training

A - an apprenticeship has to be completed

cor - correspondence course

is - in-service training

pt - training conducted on a part-time basis, e.g.

1½ years at a technikon, 1½ years on the job, total = 3 y.

(e) Qualifications to be obtained

cert. - certificate

deg. - degree

dipl. - diploma

7.4.4 Extraversion with Thinking and Sensation (ETS) (See Par. 7.3.5 and 7.3.7)a. Personal characteristics

People in this category are practical and realistic. They are friendly and easy-going, they like people and mechanical things such as cars and machines and are good at organising activities.

b. Vocations and careers(i) School qualifications lower than Std 10 sufficient

agricultural overseer	6; is
caretaker	-; is
cashier.	8; is
conductor (train)	6; is
farm foreman	8; is
foreman (industry)	7; A; is
garage owner	7; A
groundsman	-; is
guard commander	8; is
merchant	8; is
mine captain	7; pt
regimental instructor	8; is
roads superintendent	8; is
shift-boss	7; is
soldier	8; is

JPQ categories and careers, from JPQ manual.

station foreman	8; is	F. 2
station master	8; pt	
swimming bath superintendent	-; is	
ticket examiner	7; is	
traffic constable	8; pt	
transport contractor	8	

(ii) Std 10 required - training not at university

area controller	is
bank manager	Tec; 3 y.; cor; dipl.
branch manager	Tec; 3 y.; dipl.
building contractor	Tec; 4 y.; pt; dipl.
buyer	is
chartered secretary	Tec; 3 y.; dipl.
company secretary	Tec; 3 y.; dipl.
construction supervisor	Tec; 4 y.; pt; dipl.
department head	is
detective	Pol. Col.; pt
hotel manager	Tec; 3 y.; dipl.
housing manager	Tec; 2 y.; cor; cert.
marketing manager	Tec; 3 y.; dipl.
officer (army)	is
opera singer	Tec; 3 y.; dipl.
optician	Tec; 4 y.; dipl.
policeman	Pol. Col.; pt
secretary	Tec; 3 y.; cert.
spare part manager	is
superintendent	is

(iii) University training essential

conveyancer	5-6 y.; deg. + dipl.
Commissioner, Black administration	3 y.; deg.
credit controller	3 y.; deg.
dentist	5½ y.; deg.
lawyer	4-5 y.; deg.
legal adviser	5 y.; deg.
magistrate	4 y.; cor; dipl.
officer (army)	4 y.; pt; deg.
ophthalmic surgeon	9 y.; deg.
public prosecutor	4-5 y.; deg.

regional director	3 y.; deg.
stage manager	2 y.; dipl.

7.4.5 Extraversion with Thinking and Intuition (ETN) (See Par. 7.3.5 and 7.3.8)

a. Personal characteristics

One would expect to get many gifted people in this category. They are quick, ingenious and resourceful. They like to tackle problems. They are intelligent and friendly. They dislike routine, but can be inspiring leaders especially when new fields have to be conquered.

b. Vocations and careers

(i) School qualifications lower than Std 10 sufficient

florist	-; is
goldsmith	7; A
jeweller	7; A

(ii) Std 10 required - training not at university

restaurateur	is
--------------	----

(iii) University training essential

auditor	6 y.; deg.
economic adviser	4 y.; deg.
financial manager	3 y.; deg.
industrial adviser	4-5 y.; deg.
industrial manager	3 y.; deg.
insurance broker	3 y.; deg.
manager of computer section	3-5 y.; deg.
managing director	3 y.; deg.
marketing director	3 y.; deg.
production manager	6 y.; deg.
stockbroker	3 y.; deg.
wine-cellar manager	4 y.; deg.

7.4.6 Extraversion with Feeling and Sensation (EFS) (See Par. 7.3.6 and 7.3.7)

a. Personal characteristics

They are warm-hearted, talkative and friendly, interested in people, co-operative and active in society. They like sports and are interested in everyday affairs. They have good common sense in social matters but dislike mechanical problems.

b. Vocations and careers

(i) School qualifications lower than Std 10 sufficient

air hostess	9; is
ambulance man	6; is
barman	-; is
beautician	8; is
doorman	-; is
estate agent	-; is
flight steward	8; is
ground hostess	8; is
hairdresser	7; A
institution assistant (home for aged)	-; 2 y.; cor; cert.
mannequin	-
masseur	8; is
medical orderly	8; is
model	-
pharmacy assistant	8; is
photographer	7; A
porter	-; is
receptionist	8; is
salesman	8; is
shampoo lady	-; is
shop assistant	8; is
undertaker	-; is
usher	-; is
waiter	7; Hotel School; 1 y.; cert.

(ii) Std 10 required - training not at university

beautician	Tec; 3 y.; cert.
hotel receptionist	Tec; 1 y.; cert.
insurance agent	Tec; 3 y.; dipl.
occupational therapist	Col. for Occupational Therapy; 3 y.; dipl.
personnel manager	Inst. for Pers. Man.; 4 y.; cor; dipl.
public relations officer	Tec; 2 y.; pt; cert.
receptionist	Tec; 1 y.; cert.
sales manager	is
secretary	Tec; 1 y.; cert.
slimming specialist	is
tour guide	Tec; 1 y.; pt; cert.
travel agent	Tec; 1 y.; cert.
traveller	is

(iii) University training essential

committee clerk	3 y.; deg.
occupational therapist	4 y.; deg.
personnel manager	3 y.; deg.
public relations officer	3 y.; deg.
radio broadcaster	3 y.; deg.
recreation officer	4 y.; deg.
speech therapist	4 y.; deg.

7.4.7 Extraversion with Feeling and Intuition (EFN) (See Par. 7.3.6 and 7.3.8)a. Personal characteristics

These people are warm-hearted and enthusiastic. They like people and have lots of imagination. Problems are solved with quick hunches, rather than careful analyses. They are social and liked by their companions.

b. Vocations and careers(i) School qualifications lower than Std 10 sufficient

musician	-; 3 y.; dipl.
window dresser	8; is

(ii) Std 10 required - training not at university

advertising agent	Tec; 2 y.; pt
fashion designer	Tec; 3 y.; dipl.
graphic designer	Tec; 3 y.; dipl.
interior decorator	Tec; 3 y.; dipl.
journalist	Tec; 3 y.; dipl.
photographer	Tec; 3 y.; dipl.
teacher (primary school)	Teach. Col.; 3 y.; dipl.
windowdresser	Tec.; 3 y.; dipl.

(iii) University training essential

actor	3 y.; deg.
agricultural extension officer	4 y.; deg.
ballet teacher	4 y.; dipl.
choirmaster	4 y.; deg.
clergyman	5-7 y.; deg.
concert pianist	4 y.; deg.
conductor	3-4 y.; deg.
diplomat	3-5 y.; deg.
dramatist	3-5 y.; deg.
information officer	3 y.; deg.
journalist	4 y.; deg.
lecturer	4-7 y.; deg.
missionary	5-7 y.; deg.
politician	3 y.; deg.
publicity officer	3 y.; deg.
sculptor	4 y.; deg.
teacher (high school)	4 y.; deg.

7.4.8 Introversion with Thinking and Sensation (ITS) (See Par. 7.3.9 and 7.3.11)a. Personal characteristics

These people are quiet and reserved, serious and conscientious workers, logical and orderly in their daily lives. They like mechanical work and are not very social. They like to do their work thoroughly if left to themselves.

b. Vocations and careers(i) School qualifications lower than Std 10 sufficient

aircraft electrotechnician	7; A
aircraft fitter	8; A
aircraft instrument mechanic	7; A
airfield constructor	8; A
airport assistant	8; is
armament fitter	8; A
armourer	8; A
artisan	7; A
baker	7; A
beacon builder	-; is
boilermaker	7; A
bookbinder	7; A
bookkeeper	8
bricklayer	7; A
building contractor	7; A
butcher	7; A
cabinetmaker	7; A
cable jointer	7; is
carpenter	7; is
checker	-; is
clerk	8
cook	7; is
crane driver	6; is
diamond cutter	7; A
diemaker	7; A
diesel mechanic	7; A
diver	7; A
domestic appliances mechanic	7; A
drill grinding machine operator	6; is
driver (steam, electric)	8; is
electrical wireman	7; is
electroplater	7; is
engineer-officer (marine)	7; Tec; 5 y.; pt; cert.
engraver	7; is
farm assistant	-; is
farm labourer	-; is
fidelity guard	8

fingerprint officer	8; is
fisherman	-; is
fitter and turner	7; A
furniture maker	7; A
furrier	-; is
gamekeeper	8
gardener	-; is
groundsman	-; is
instrument maker	7; A
invoice clerk	8; is
laundry assistant	-; A
life saver	-; cert.
lift mechanic	7; A
maize miller	7; A
marble mason	7; A
marine fitter	8; A
messenger of the court	8
meter reader	6; is
milk tester	8; Agric. Col.; 2 y.; pt; dipl.
mine surveyor	8; is
miner	-; is
motor mechanic	7; A
moulder	7; A
office assistant	-; is
office machine operator	8; is
operator	-; is
panel beater	7; A
pattern maker (artisan)	7; A
pest controller	8; Tec; 1 y.; cor; cert.
piano tuner	8; blind; dipl.
plasterer	7; A
plumber	7; A
postman	6; is
printer	7; A
printer's mechanic	7; A
projectionist	8; is
punch card machine operator	-; is
radio fitter (radar)	7; A
radio operator	8
seaman	-; is
sewing machine mechanic	7; A

sheet-metal worker	7; A
shoemaker	7; A
shopfitter	7; A
shunter	-; is
signal fitter	7; A
signwriter	7; A
spray painter	7; A
steel construction worker	7; A
stock inspector	8; is
stores assistant	-; is
stores officer	-; is
superintendent of works	7; A; is
tailor	7; A
technical assistant	8; is
telephone mechanic	7; is
telephonist	8
toolmaker	7; A
tracer	8
tractor mechanic	7; A
typesetter	7; A
typist	8
underframe builder	7; A
upholsterer	7; A
vehicle body builder	7; A
watchmaker	-; is
water purification operator	-; is
waterworks supervisor	6; is
wood turner	7; A

(ii) Std 10 required - training not at university

accountant	Tec; 3 y.; dipl.
administrative assistant	Tec; 3 y.; dipl.
aeronautical radio technician	Tec; 4 y.; pt; dipl.
agricultural extension officer	Tec; 3 y.; pt; dipl.
agricultural researcher	Tec; 3 y.; pt; dipl.
analytical chemist	Tec; 3 y.; pt; dipl.
analytical physicist	Tec; 3 y.; pt; dipl.
architectural draughtsman	Tec; 2 y.; pt; cert.
banker	Tec; 3 y.; cor; dipl.
beer brewing technologist	Tec; 3 y.; pt; dipl.

biochemist	Tec; 3 y.; pt; dipl.
bookkeeper	Tec; 3 y.; dipl.
builder	Tec; 4 y.; pt; dipl.
building surveyor	Tec; 4 y.; pt; dipl.
cartographer	Tec; 3 y.; pt; dipl.
caterer	Tec; 2 y.; cert.
chemical technologist (plastics)	Tec; 4 y.; pt; dipl.
cost accountant	Tec; 3 y.; pt; cert.
draughtsman	Tec; 3 y.; pt; dipl.
engineering technician	Tec; 4 y.; pt; dipl.
- civil	Tec; 4 y.; pt; dipl.
- diesel	Tec; 4 y.; pt; dipl.
- electrical	Tec; 4 y.; pt; dipl.
- electronics	Tec; 4 y.; pt; dipl.
- mechanical	Tec; 4 y.; pt; dipl.
- production	Tec; 4 y.; pt; dipl.
engineer-officer (marine)	Tec; 4 y.; pt; cert.
explosives expert	Tec; 4 y.; pt; dipl.
farmer	Agric. Col.; 2 y.; dipl.
fireman	Tec; 3 y.; pt; dipl.
flight controller	is
food technologist	Tec; 3 y.; pt; dipl.
forester	Saasveld; 3 y.; pt; dipl.
geological technician	Tec; 3 y.; pt; dipl.
health inspector	Tec; 3 y.; dipl.
horticulturist	Tec; 3 y.; pt; dipl.
hydrological technician	Tec; 3 y.; pt; dipl.
inspector of weights and measures	Tec; 4 y.; pt; cert.
insurance assessor	is
library assistant	is
livestock inspector	Tec; 3 y.; pt; dipl.
material tester	Tec; 3 y.; pt; dipl.
meat inspector	Tec; 3 y.; pt; dipl.
medical representative	Tec; 2 y.; cor; cert.
medical technologist	Tec; 4 y.; pt; dipl.
metallurgist	Tec; 4 y.; pt; dipl.
metereological technician	Tec; 3 y.; pt; dipl.
microbiologist	Tec; 3 y.; pt; dipl.
mine sampler	Mine; 2 y.; pt; cert.
mine surveyor	Mine; 2½ y.; pt; cert.
munition technician	Tec; 4 y.; pt; dipl.

nature conservation officer	Tec; 3 y.; pt; dipl.
navigator (air force)	is
navigating officer (merchant navy)	Acad.; 3 y.; pt; cert.
oceanographer	Tec; 3 y.; pt; dipl.
orthopaedic technician	Hosp.; 5 y.; pt; dipl.
pharmacist	Tec; 4 y.; dipl.
pilot (defence force)	is
plant inspector	Tec; 3 y.; pt; dipl.
radio operator	Tec; 3 y.; pt; cert.
radio technician	Tec; 4 y.; pt; dipl.
registrar of deeds	Justice; 3 y.; cor; dipl.
stage design	Tec; 3 y.; dipl.
sugar technologist	Tec; 4 y.; pt; dipl.
surveyor (topographical)	Tec; 3 y.; pt; dipl.
technician	Tec; 4 y.; pt; dipl.
town and regional planner	Tec; 4 y.; pt; dipl.
veterinary technologist	Tec; 3 y.; pt; dipl.
water purification technologist	Tec; 3 y.; pt; dipl.
work study officer	Tec; 3 y.; dipl.

(iii) University training essential

accountant	3 y.; deg.
agriculturist	4 y.; deg.
anaesthetist	9 y.; deg.
dairy scientist	4 y.; deg.
dietician	3 y.; deg.
economist	3 y.; deg.
forestry officer	4 y.; deg.
horticulturist	4 y.; deg.
household economist	4 y.; deg.
nature conservation officer	4 y.; deg.
patent agent	4 y.; cor; dipl.
pharmacist	4 y.; deg.
radiologist	9 y.; deg.
specialist	9 y.; deg.
surgeon	9 y.; deg.
veterinary surgeon	5½ y.; deg.

7.4.9 Introversion with Thinking and Intuition (ITN) (See Par. 7.3.9 and 7.3.12)a. Personal characteristics

These people are quiet and reserved; they may be talented and original. They like theoretical and scientific work. They are imaginative, critical and aloof. They are unsocial and may sometimes be very stubborn.

b. Vocations and careers(i) School qualifications lower than Std 10 sufficient

caterer	7; A
jewelry setter	7; A
milliner	-; is
potter	-; is
woodcarver	7; is

(ii) Std 10 required - training not at university

ballistics expert	Tec; 4 y.; pt; dipl.
programmer	Tec; 3 y.; dipl.

(iii) University training essential

actuary	6 y.; dipl.
advocate	5 y.; deg.
agronomist	4 y.; deg.
analytical chemist	3 y.; deg.
archaeologist	5 y.; deg.
architect	5 y.; deg.
archivist	4 y.; deg. + dipl.
astronomer	5 y.; deg.
atomic physicist	4 y.+; deg.
biochemist	3 y.; deg.
biological researcher	3 y.; deg.
botanist	3 y.; deg.
cartographer	3 y.; deg.
chemist	3 y.; deg.
city planner	4 y.; deg.
computer scientist	3 y.; deg.
cost accountant	3 y.; deg.

curator	4 y.; deg. + dipl.
econometrist	3-5 y.; deg.
engineer	4-5 y.; deg.
- aeronautical	4-5 y.; deg.
- agricultural	4-5 y.; deg.
- chemical	4-5 y.; deg.
- civil	4-5 y.; deg.
- consulting	4-5 y.; deg.
- electronic	4-5 y.; deg.
- electrical	4-5 y.; deg.
- industrial	4-5 y.; deg.
- mechanical	4-5 y.; deg.
- mining	4-5 y.; deg.
entomologist	4 y.; deg.
ethnologist	3 y.; deg.
food scientist	4 y.; deg.
geographer	3 y.+; deg.
geologist	4 y.; deg.
geophysicist	4 y.; deg.
hydrologist	4 y.; deg.
judge	5 y.; deg.
landscape architect	4 y.; deg.
land surveyor	4 y.; deg.
manpower analyst	3-5 y.; deg.
marine biologist	4 y.; deg.
master of the supreme court	4 y.; cor; dipl.
mathematician	3 y.; deg.
metallurgist	4 y.; deg.
meteorologist	3 y.; deg.
microbiologist	4 y.; deg.
nuclear physicist	4 y.; deg.
organisation and methods officer	3 y.; deg.
oceanographer	4 y.; deg.
palaeontologist	4 y.; deg.
pathologist	9 y.; deg.
physicist	3 y.; deg.
physiologist	3 y.; deg.
plant pathologist	4 y.; deg.
poultry scientist	4 y.; deg.
programmer	3 y.; deg.
quantity surveyor	5 y.; deg.

researcher	3 y.+; deg.
statistician	3 y.; deg.
systems analyst	3 y.; deg.
zoologist	3 y.; deg.

7.4.10 Introversion with Feeling and Sensation (IFS) (See Par. 7.3.10 and 7.3.11)

a. Personal characteristics

These people are quiet and friendly, sensitive and conscientious. They are modest and amiable. They are patient with problems but slow, though thorough workers. They may sometimes tend to delay finishing their tasks.

b. Vocations and careers

(i) School qualifications lower than Std 10 sufficient

animal trainer	-; is
auxiliary nurse	8; 2 y.; pt; cert.
crèche assistant	-; is
dog handler	8; is
jockey	6; Jockey School
matron in a hostel	8; is
nursing assistant	-; is
prison officer	8; is
staff clerk	8; is
taxidermist	-; is
zoo keeper	-; is

(ii) Std 10 required - training not at university

chiropodist	Tec; 3 y.; dipl.
dental assistant	Tec; 1 y.; dipl.
electroencephalographic technician	CSIR; 1 y.; is; cert.
matron (hospital)	Hosp.; + 8 y.; pt; dipl.
nurse	Hosp.; 3½ y.; pt; dipl.
physiotherapist	Col.; 3 y.; dipl.
potter in a studio	Tec; 3 y.; dipl.
radiographer	Hosp.; 3 y.; is; dipl.
radio therapist	Hosp.; 3 y.; is; dipl.
social worker	Col.; 3 y.; dipl.

(iii) University training essential

animal nurse	2 y.; dipl.
doctor (general practitioner)	6 y.; deg.
nurse	4 y.; deg.
oral hygienist	2 y.; dipl.
physician	9 y.; deg.
physiotherapist	4 y.; deg.
social worker	4 y.; deg.

7.4.11 Introversion with Feeling and Intuition (IFN) (See Par. 7.3.10 and 7.3.12)a. Personal characteristics

Some of these people are gifted. They prefer to work alone or with few associates, though they are considerate and friendly towards their colleagues. They are conscientious workers.

b. Vocations and careers(i) School qualifications lower than Std 10 sufficient

interpreter	-
photolithographer	7; A
proofreader	7; A

(ii) Std 10 required - training not at university

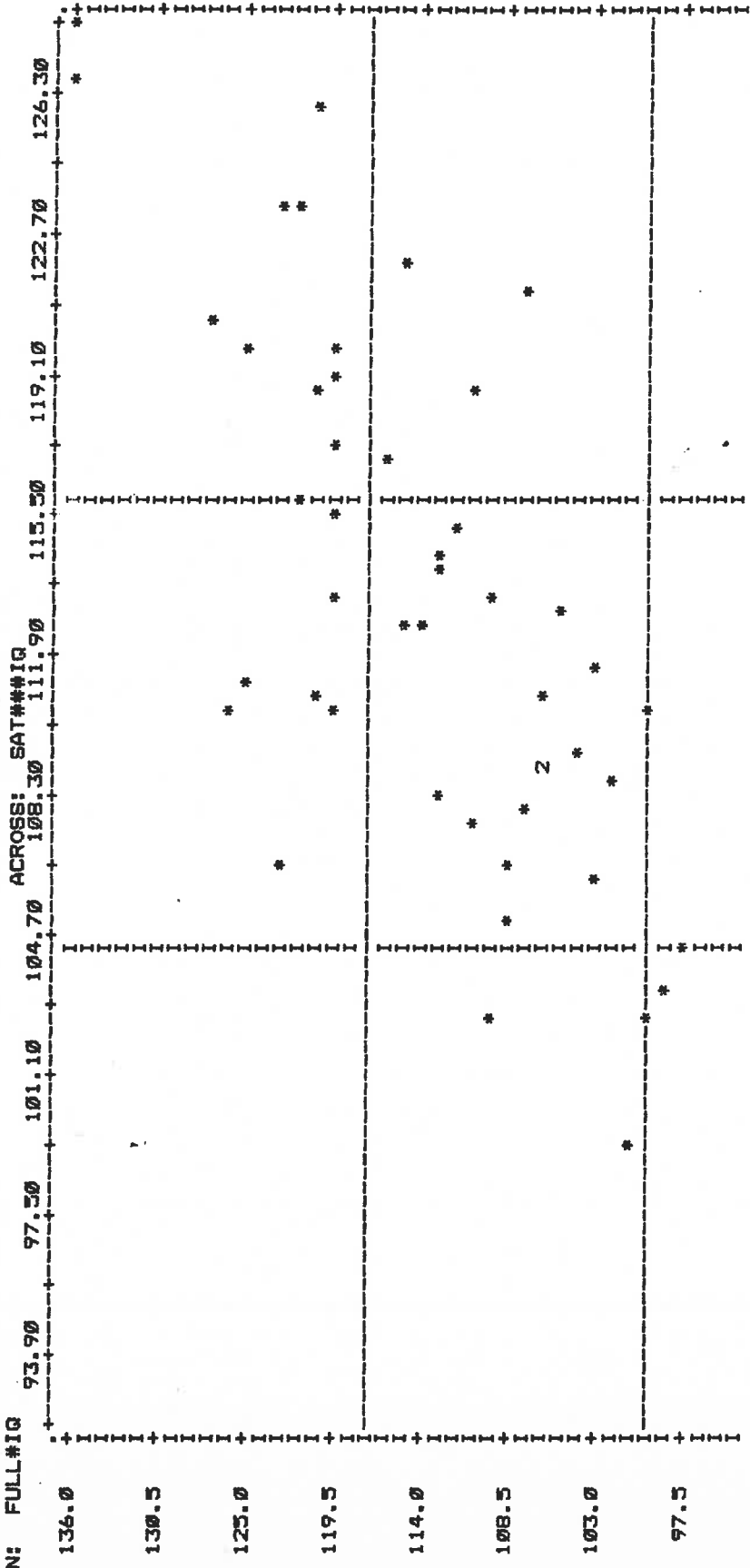
industrial designer	Col. for Art; 3 y.; dipl.
sculptor	Tec; 3 y.; dipl.
textile designer	Tec; 3 y.; dipl.

(iii) University training essential

artist	4 y.; deg.
art critic	3 y.; deg.
ballerina	3 y.; dipl.
child psychologist	6-7 y.; deg.
clinical psychologist	6 y.; deg.
criminologist	4 y.; deg.
grammarian	3-5 y.; deg.

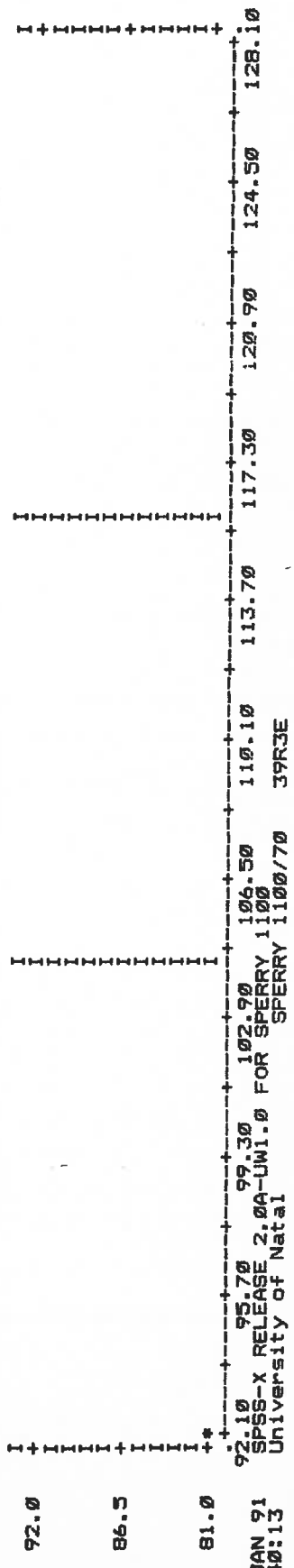
historian	3-5 y.; deg.
librarian	4 y.; deg.
linguist	3 y.+; deg.
psychiatrist	9 y.; deg.
psychologist	6 y.; deg.
sociologist	4-5 y.; deg.
translator	3 y.; deg.

COMMAND LINE: 1, CURRENT CASE: 1, SPLITFILE GROUP: 1
 FIELD CONTENTS: 2, STARTING COLUMN: 76, RECORD LENGTH: 76
 RECORD NUMBER: 16 JAN 91 SPSS-X RELEASE 2.0A-UW1.0 FOR SPERRY 1100
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SCATTERPLOT & CORRELATION OF SAT-IQ'S SUPPLIED, WITH FULL-SCALE IQ



16 JAN 91
 08:40:13
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***** ANALSIS OF VARIANCE *****

Cell Means and Standard Deviations (CONT.)

Variable .. INT#IV3 LANGUAGE

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	5.75000	1.50000	4	3.36320	8.13680
ROOS	MEDICAL/	5.33333	1.73205	9	4.00196	6.66470
ROOS	APPLIED	5.40000	3.04959	5	1.61350	9.18650
ROOS	ARTS, SO	6.57143	1.61835	7	5.07472	8.06814
ROOS	LAW & CO	4.44444	1.81046	9	3.05280	5.83609
For entire sample		5.41176	1.97127	34	4.72395	6.09957

Variable .. INT#IV4 HISTORICAL

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	3.75000	1.25831	4	1.74778	5.75222
ROOS	MEDICAL/	3.00000	1.65851	9	1.72531	4.27469
ROOS	APPLIED	3.40000	1.67332	5	1.32233	5.47767
ROOS	ARTS, SO	4.00000	1.29099	7	2.80604	5.19396
ROOS	LAW & CO	3.55556	2.69774	9	1.48189	5.62922
For entire sample		3.50000	1.82989	34	2.86152	4.13848

Variable .. INT#IV5 SERVICE

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	5.25000	5.00000	4	4.45440	6.04560
ROOS	MEDICAL/	5.68889	2.02759	9	4.33035	7.44743
ROOS	APPLIED	4.40000	1.51658	5	2.51695	6.28305
ROOS	ARTS, SO	5.14286	1.34519	7	3.89877	6.38694
ROOS	LAW & CO	5.55556	1.42400	9	4.46097	6.65014
For entire sample		5.35294	1.53509	34	4.81732	5.88856

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***** ANALYSIS OF VARIANCE *****

Cell Means and Standard Deviations (CONT.)

Variable .. INT#IV6 SOCIAL WORK

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	5.50000	1.00000	4	3.90880	7.09120
ROOS	MEDICAL/	5.33333	2.29129	9	3.57210	7.09457
ROOS	APPLIED	6.20000	1.64317	5	4.15977	8.24023
ROOS	ARTS, SO	5.00000	1.63299	7	3.48974	6.51026
ROOS	LAW & CO	5.00000	1.87083	9	3.56196	6.43804
For entire sample		5.32353	1.78751	34	4.69984	5.94722

Variable .. INT#IV7 SOCIABILITY

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	4.75000	1.50000	4	2.36320	7.13680
ROOS	MEDICAL/	6.11111	1.90029	9	4.65042	7.57180
ROOS	APPLIED	6.40000	2.30217	5	3.54152	9.25848
ROOS	ARTS, SO	6.57143	1.71825	7	4.98232	8.16054
ROOS	LAW & CO	5.77778	2.10819	9	4.15728	7.39827
For entire sample		6.00000	1.90693	34	5.33464	6.66536

Variable .. INT#IV8 PUBLIC SPEAKING

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	6.00000	1.41421	4	3.74970	8.25030
ROOS	MEDICAL/	5.77778	1.09291	9	4.93770	6.61786
ROOS	APPLIED	6.20000	2.28035	5	3.36862	9.03138
ROOS	ARTS, SO	6.85714	1.86445	7	5.13282	8.58147
ROOS	LAW & CO	5.33333	1.93649	9	3.84482	6.82185
For entire sample		5.97059	1.71421	34	5.37247	6.56870

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***** ANALYSIS OF VARIANCE *****

Cell Means and Standard Deviations (CONT.)

Variable .. INT#IV9 LAW

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	6.00000	.81650	4	4.70079	7.29921
ROOS	MEDICAL/	6.11111	2.20479	9	4.41636	7.80586
ROOS	APPLIED	6.40000	2.70185	9	3.04526	9.75474
ROOS	ARTS, SO	9.14286	1.57359	7	4.68754	7.59818
ROOS	LAW & CO	5.33333	1.87083	9	3.89529	6.77138
For entire sample		5.94118	1.89002	34	5.28172	6.60064

Variable .. INT#IV10 CREATIVE THOUGHT

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	7.00000	1.41421	4	4.74970	9.25030
ROOS	MEDICAL/	6.11111	1.90029	9	4.65042	7.57180
ROOS	APPLIED	7.00000	2.54951	5	3.83442	10.16558
ROOS	ARTS, SO	9.14286	1.34519	7	3.89877	6.38694
ROOS	LAW & CO	5.33333	2.50000	9	3.41167	7.25500
For entire sample		5.94118	2.05885	34	5.22281	6.65954

Variable .. INT#IV11 SCIENCE

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	6.00000	.81650	4	4.70079	7.29921
ROOS	MEDICAL/	6.44444	1.42400	9	5.34986	7.53903
ROOS	APPLIED	4.40000	1.14018	5	2.98431	5.81569
ROOS	ARTS, SO	5.42857	1.71825	7	3.83946	7.01768
ROOS	LAW & CO	5.22222	2.16667	9	3.55678	6.88767
For entire sample		5.55882	1.69117	34	4.96874	6.14890

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***** VARIANCE *****

Cell Means and Standard Deviations (CONT.)

Variable .. INT#IV12 PRACTICAL-MALE

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	4.75000	2.06155	4	1.46966	8.03034
ROOS	MEDICAL/	5.55556	1.74005	9	4.21804	6.89308
ROOS	APPLIED	3.00000	2.23607	5	.22360	5.77640
ROOS	ARTS, SO	4.14286	2.26779	7	2.04552	6.24020
ROOS	LAW & CO	4.66667	1.00000	9	3.89800	5.43533
For entire sample		4.55882	1.89403	34	3.89797	5.21968

Variable .. INT#IV13 PRACTICAL-FEMALE

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	5.25000	.50000	4	4.45440	6.04560
ROOS	MEDICAL/	5.11111	2.31541	9	3.33133	6.89089
ROOS	APPLIED	5.00000	1.22474	5	3.47930	6.52070
ROOS	ARTS, SO	4.71429	2.05866	7	2.81035	6.61822
ROOS	LAW & CO	4.44444	1.74005	9	3.10692	5.78196
For entire sample		4.85294	1.76038	34	4.23872	5.46717

Variable .. INT#IV14 NUMERICAL

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	6.25000	1.25831	4	4.24778	8.25222
ROOS	MEDICAL/	5.22222	2.16667	9	3.55678	6.88767
ROOS	APPLIED	3.80000	2.94958	5	.13768	7.46232
ROOS	ARTS, SO	4.14286	2.03540	7	2.26044	6.02528
ROOS	LAW & CO	5.55556	2.00693	9	4.01289	7.09822
For entire sample		5.00000	2.17423	34	4.24138	5.75862

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***** ANALYSIS OF VARIANCE *****

Cell Means and Standard Deviations (CONT.)

Variable .. INT#IV15 BUSINESS

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	6.25000	2.06155	4	2.96966	9.53034

ROOS MEDICAL/ APPLIED/ SO LAW & CO
 For entire sample

6.11111	1.69148	9	4.81092	7.41130
4.60000	1.67332	5	2.52233	6.67767
7.42857	1.13389	7	6.37990	8.47724
6.00000	2.23607	9	4.28121	7.71879
6.14706	1.89309	34	5.48653	6.80759

Variable .. INT#IV16 CLERICAL

Factor	Code	Mean	Std. Dev.	N	95 percent Conf. Interval
ROOS	SCIENCE	3.00000	1.41421	4	5.25030
ROOS	MEDICAL/ APPLIED/	3.77778	2.10819	9	5.39827
ROOS	ARTS, SO	3.40000	1.54772	5	3.08008
ROOS	LAW & CO	3.42857	1.61836	7	4.92528
		4.22222	1.85592	9	5.64881
For entire sample		3.52941	1.72741	34	4.13213

Variable .. INT#IV17 TRAVEL

Factor	Code	Mean	Std. Dev.	N	95 percent Conf. Interval
ROOS	SCIENCE	5.75000	2.06155	4	9.03034
ROOS	MEDICAL/	5.66667	2.06155	9	7.25131
ROOS	APPLIED/	5.80000	2.58844	5	9.01392
ROOS	ARTS, SO	3.57143	1.98806	7	7.41007
ROOS	LAW & CO	4.55556	2.69774	9	6.62922
For entire sample		5.38235	2.22948	34	6.16026

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***** ANALYSIS OF VARIANCE *****

Cell Means and Standard Deviations (CONT.)

Variable .. INT#IV18 NATURE

Factor	Code	Mean	Std. Dev.	N	95 percent Conf. Interval
ROOS	SCIENCE	5.50000	1.91485	4	8.54692
ROOS	MEDICAL/	5.66667	2.06155	9	7.25131
ROOS	APPLIED/	4.40000	2.07354	5	6.97473
ROOS	ARTS, SO	5.28571	1.38013	7	6.56212
ROOS	LAW & CO	5.11111	1.76383	9	6.46691

For entire sample 5.23529 1.77625 34 4.61553 5.85506

Variable .. INT#IV19 SPORT

Factor	Code	Mean	Std. Dev.	N	95 percent Conf.	Interval
ROOS	SCIENCE	4.75000	1.89297	4	1.73791	7.76209
ROOS	MEDICAL/	4.44444	1.81046	9	3.05280	5.83609
ROOS	APPLIED/	2.60000	1.81659	5	3.44444	4.85556
ROOS	ARTS, SO	4.28571	2.36039	7	2.10273	6.46870
ROOS	LAW & CO	5.44444	1.42400	9	4.54986	6.53903
For entire sample		4.44118	1.95698	34	3.75835	5.12400

Cell Number .. 1

The variance-covariance matrix for this cell is singular.

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***** ANALYSIS OF VARIANCE *****

Cell Number .. 2

The variance-covariance matrix for this cell is singular.

Cell Number .. 3

The variance-covariance matrix for this cell is singular.

Cell Number .. 4

The variance-covariance matrix for this cell is singular.

Cell Number .. 5

The variance-covariance matrix for this cell is singular.

All cells have singular variance-covariance matrices.

Boxs M-test cannot be performed.

Correspondence between Effects and Columns of WITHIN-Subjects Design 1

Starting Column	Ending Column	Effect Name
1	1	CONSTANT
2	19	NINETEEN

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***** ANALYSIS OF VARIANCE *****

Correspondence between Effects and Columns of BETWEEN-Subjects Design 1

Starting Column	Ending Column	Effect Name
1	1	CONSTANT
2	5	ROOTS

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***** ANALYSIS OF VARIANCE *****

Order of Variables for Analysis

Variates	Covariates	Not Used
*INT#IV1		INT#IV2
		INT#IV3
		INT#IV4
		INT#IV5
		INT#IV6
		INT#IV7
		INT#IV8
		INT#IV9

The "Holland" code: (From 4.3.3.)

The writer attempted to group the 19 fields roughly into categories following the Holland dimensions (section 3.3), referring to the intra-test correlations found, and developed the following groupings:

TABLE . 19FII-'Holland' groupings

REALISTIC	(Nature (Sport (Practical - male
INVESTIGATIVE	(Numerical (Science
ARTISTIC	(Fine Arts (Performing Arts (Language (Historical
SOCIAL	(Service (Social Work (Sociability
ENTERPRISING	(Law (Business
CONVENTIONAL	(Practical - female (Clerical

Selected 19FII fields

The 3 fields not included in the above categorisation were: Public Speaking (correlated both with Arts, and Law related fields), Creative Thought and Travel (both correlated with a number of fields not grouped together above).

If a pupil scored stanines 7 - 9 in one of the 19FII fields in a 'Holland' dimension as grouped above, the dimension was coded to the pupil. Thus it was possible to compare the 'Holland' code for the 19FII with the current occupation, coded in the same way (see section 3.3.). Unfortunately, although the current activities could only

be coded in at the most, 3 of the first 6 dimensions; if a 19FII profile was very flat and average, the pupil may code in no categories, alternatively if they were indecisive and acquiescent they may have coded in all categories. Four pupils either coded all 0's or all 1's, so they were excluded from the comparison below, but there may be some pupils who coded four or five 1's (i.e. appearing in four or five of the first six columns), thus their 19FII 'Holland' code would not be that useful.

TABLE . Comparison of 19FII-'Holland' code with current activity

	19FII PREDICTIONS										
	R	A	I	S	E	C	RA	AI	IS	SEEC	CR
R		5	6	4	4	5	2	5	3	221	1
A		4	6	9	9	10	3	4	3	662	1
I		4	4	10	9	9	2	1	4	862	1
S		2	2	4	3	5	0	1	1	320	0
E		2	2	3	2	4	0	2	1	120	0
C		4	6	4	8	5	2	4	3	231	1
RA		3	4	3	4	4	2	3	2	221	1
AI		0	1	4	4	4	1	0	1	441	0
IS		2	1	4	3	4	0	1	1	320	0
SE		0	0	0	0	0	0	0	0	000	0
EC		2	2	1	1	2	0	2	1	010	0
CR		2	3	3	4	2	2	2	2	221	1

(The rows are the categories for their current activity)

A survey of the above shows that the 19FII predicted fairly accurately in the Social (S), the Investigative (I), and the Realistic-Artistic (RA) dimensions. The writer would have been happier to see larger counts on the main diagonal rather than off it. The results are inconclusive, because the number of respondents who had done the 19FII was too small, and the coding system proved problematic. The coding system was not exclusive enough

because respondents could code in more than one category. The above matrix was increased to become a three-way matrix, using the subjective 'satisfaction' scores, but the results were too inconclusive.

RAISE#3	IRRELATED	VETR	SOCIAL	C.SCIENC	MMERCE	TOTAL
0	11	21	31	41	51	31
1	7	8	4	1	12	63.3
	1	1	6	9	2	18
	7	7	10	7	14	36.7
COLUMN TOTAL	14.3	18.4	20.4	18.4	28.6	100.0

CHI-SQUARE D.F. SIGNIFICANCE MIN E.F. CELLS WITH E.F. < 5

27.47200
 NUMBER OF MISSING OBSERVATIONS = 0
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RAISE#4 ----- CROSS TABULATION OF -----
 BY ROOS

RAISE#4	COUNT	IRRELATED	MEDICAL/ VETR	APPLIED SOCIAL	ARTS, SO C.SCIENC	SO LAW & CO MMERCE	ROW TOTAL
0	11	21	31	41	51	40	
1	7	8	6	1	13	81.5	
	1	1	4	3	1	9	
	7	7	10	9	14	18.4	
COLUMN TOTAL	14.3	18.4	20.4	18.4	28.6	100.0	

CHI-SQUARE D.F. SIGNIFICANCE MIN E.F. CELLS WITH E.F. < 5

7.53299
 NUMBER OF MISSING OBSERVATIONS = 0
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RAISE#5 ----- CROSS TABULATION OF -----
 BY ROOS

RAISE#5	COUNT	IRRELATED	MEDICAL/ VETR	APPLIED SOCIAL	ARTS, SO C.SCIENC	SO LAW & CO MMERCE	ROW TOTAL
0	11	21	31	41	51	37	
1	6	9	7	9	6	75.5	
	1	1	1	1	1	6	
	7	7	10	9	14	18.4	
COLUMN TOTAL	14.3	18.4	20.4	18.4	28.6	100.0	

CHI-SQUARE D.F. SIGNIFICANCE MIN E.F. CELLS WITH E.F. < 5

27.47200
 NUMBER OF MISSING OBSERVATIONS = 0
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1 1 1 1 3 1 1 8 1 12
 7 9 10 9 28.6 49
 COLUMN TOTAL 14.3 18.4 20.4 18.4 28.6 100.0

CHI-SQUARE D.F. SIGNIFICANCE MIN E.F. CELLS WITH E.F. < 5

14.46824
 NUMBER OF MISSING OBSERVATIONS = 0
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RAISE#6 C R O S S T A B U L A T I O N O F
 BY ROOS

ROOS
 I SCIENCE MEDICAL/ APPLIED ARTS, SO LAW & CO
 I RELATED VETR SOCIAL 31 C. SCIENCE MME RDE 51
 11 41
 6 1 3 1 8 1 9 1 4 1 30
 1 1 6 1 2 1 1 10 1 19
 COLUMN TOTAL 7 9 10 9 14 49
 14.3 18.4 20.4 18.4 28.6 100.0

CHI-SQUARE D.F. SIGNIFICANCE MIN E.F. CELLS WITH E.F. < 5

18.19818
 NUMBER OF MISSING OBSERVATIONS = 0
 SPSS-X RELEASE 2.0A-UW1.0 FOR SPERRY 1100
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RAISE#6 C R O S S T A B U L A T I O N O F
 BY ROOS

ROOS
 I SCIENCE MEDICAL/ APPLIED ARTS, SO LAW & CO
 I RELATED VETR SOCIAL 31 C. SCIENCE MME RDE 51
 11 41
 2 1 3 1 4 1 6 1 6 1 21
 5 1 6 1 6 1 3 1 8 1 28
 COLUMN TOTAL 7 9 10 9 14 49
 14.3 18.4 20.4 18.4 28.6 100.0

H: EXAMPLE OF A CLASSIFICATION OF CAREER GROUPS AND CAREERS

<p>Realistic careers</p> <p>Wall and floor tiler Filling station attendant Carpenter Spraypainter Welder Bus driver Baker Fireman Bricklayer Meter reader Motor mechanic Plumber Electrician Miner Farmer Draughtsman Tool designer</p>	<p>Investigative careers</p> <p>Medical laboratory technician Food technologist Horticulturist Agriculturist Land surveyor Pharmacist Optometrist Medical doctor Dentist Veterinary surgeon Engineer Airline pilot Geologist Chemist Computer programmer Mathematician</p>	<p>Artistic careers</p> <p>Photographer Singer Musician Actor Interior designer Fashion designer Conductor Writer Commercial artist Sculptor Composer Poet Journalist Cartoonist Editor Architect</p>
<p>Social careers</p> <p>Hairdresser Librarian Training officer Teacher Historian Occupational therapist Social worker Radio/TV announcer Nurse Vocational counsellor Marriage counsellor Speech therapist Juvenile delinquency expert Diplomat Clergyman Psychologist</p>	<p>Enterprising careers</p> <p>Traffic officer Shop assistant Buyer Speculator Hotel manager Building contractor Insurance agent Estate agent Sales representative Manager marketing Personnel manager Interpreter Attorney Magistrate Company secretary Industrial engineer</p>	<p>Conventional careers</p> <p>Usher Postman Waiter Telephone operator Receptionist Typist Clerk Cashier Bookkeeper Computer operator Proofreader Library assistant Stock controller Transport manager Accountant Quantity surveyor</p>

Holland, J. L. *Making vocational choices*, Prentice-Hall, New Jersey, 1985

From Department of Manpower, Careers 2000 workbook

(1988)

