THE DEVELOPMENT OF VOCATIONAL MATURITY IN PUPILS BY MEANS OF A CLASSROOM CAREER EDUCATION PROGRAM.

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A Thesis submitted in partial fulfilment of the requirements for the degree of M.Sc. (Clinical Psychology) at the University of Cape Town.

June, 1977.

ACKNOWLEDGEMENTS

A number of people have contributed in various ways towards this Thesis. I want to use this opportunity to publicly express my gratitude to them.

Mr. Niels Lindhard, the Careers Adviser at the University of Cape Town has my sincerest thanks for all that he has done for me over the past months. Thank you Niels.

The teachers who taught my program have my sincerest thanks for their help.

The comments and assistance of my Supervisor, Professor P.D. du Preez of the Psychology Department at the University of Cape Town, are appreciated.

The Cape Provincial Department of Education has my thanks for granting me permission to enter the schools used in the research, and for loaning me test material.

The financial assistance of the Human Sciences Research Council towards the costs of this thesis is acknowledged, with gratitude.

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ABSTRACT

A career education program, focusing on self-awareness, was written with the aim of developing the vocational maturity of pupils. The program was taught by guidance teachers to two Standard Ten classes in the same boy's school (N = 48) and to one Standard Nine class in a co-educational school (N = 27). A pre-post test design, with three control classes in the same standards and schools, was used. It was hypothesized that : (1) vocational maturity and (2) job certainty would improve; (3) intelligence and (4) personality are related to vocational maturity, and are also related to a change in vocational maturity (3a, 4a). Using a variety of measures, including the Career Maturity Inventory and the H.S.P.Q., significant results were obtained only for Hypothesis (1), (for one Standard Ten class only) and for Hypotheses (2) and (4), (for both Standard Ten classes only). Further analyses revealed that vocational maturity had a positive relationship with job certainty and a negative relationship with parental aspiration. It was concluded that the program satisfied the aim and that personality development should become an important aspect of career education.

SUMMARY

There has been in recent years a movement in both the U.S.A. and Britain to expand the scope of school guidance beyond its traditional limits. These limits were well defined by the Committee for Differentiated Education who proposed that a guidance system should concern itself with the provision of occupational information, provision of personal information, obtained from test data, and a counseling service, which would assist pupils to make their own career decisions in a responsible manner. (Human Sciences Research Council : Report of the Committee for Differentiated Education, 1971).

The main thrust of the career education movement in the U.S.A. has been to develop in school-going youth an awareness of social values, and the knowledge, skills and attitudes necessary for a successful passage through life. Career education is, to the Americans, an extensive concept covering many aspects of life and living, based on the idea that a career is part of a person's life, not merely a job. The British approach has been more circumscribed and is characterized by an emphasis on decision making, as this pertains to career choice. To help pupils in their career planning, the British approach stresses the development of insight, and knowledge about work. The difference between guidance and career education is a matter of extensiveness. A service which is restricted to the provision of information and advice is a guidance service while a service which goes beyond this, and attempts to foster the awareness of pupils

to themselves, of jobs and life in general, could be considered to be career education.

South Africa has a well established guidance service in its schools which, according to the definition offered by the Committee for Differentiated Education, is limited to guidance, i.e. advice giving and not career education in the broader sense. In an attempt to provide a formalised, integrated approach to career education in which pupils would be given the conceptual tools and skills necessary to make sound career decisions, and in which teachers could be provided with a program of proven value, an educational program was written which focused on self-awareness and the relationship between self-aspects and career planning.

The program was based on the principles of career development, elucidated by Super and his colleagues (Super and Jordaan, 1973) over more than twenty years of longitudinal research. One of the basic tenets of Super's theorising has been that career choice and establishment is a developmental process, passing through clearly distinguishable stages in which various modes of thinking about the future, and of attitudes to the process of career choice, are apparent. Super formulated the concept of vocational maturity to describe the stage of vocational development of an individual. This concept incorporates both attitudes and behaviour, appropriate to the age of the person, which are related to later career success. The ability to make sound career choices on leaving school

depends on the amount and nature of occupational knowledge available, on the level of insight, on the ability to specify job goals and to plan constructively, on the ability to make decisions and on a general attitudinal orientation to career choice. The program written for the research incorporated the elements of insight, planning and decision making.

Various research studies were reviewed and it was seen that the vocational maturity of adolescents, usually defined by scores on an attitude scale, could be developed, usually by means of group counseling techniques. The research also indicated that intelligence and personality were important factors in the development of vocational maturity of adolescents.

Based on the research review, six hypotheses were formulated. These were :

1) Pupils will develop significantly in their levels of vocational maturity as a result of being taught a program of career education.

2) Pupils will develop significantly greater certainty about their career choices as a result of being taught a program of career education.

3) Intelligence will be significantly related to vocational maturity.

3a) Intelligence will be significantly related to a change in vocational maturity, following participation in a program of career education.

4) Certain personality variables, associated with the concept of personality adjustment, will be significantly related to vocational maturity.

4a) Certain personality variables, associated with the concept of personality adjustment will be significantly related to change in vocational maturity following participation in a program of career education.

Method

Subjects were drawn from three schools. School One, a boys' school, provided four Standard 10 classes, E_1, E_2, E_3 and E_4, designated as Group One. E_1 and E_2 were the experimental classes and E_3 and E_4 were the control classes. School Two, a co-educational school, provided two Standard 9 classes, 9c and 9d, designated as Group Two. Classes 9c and 9d were the experimental and control classes respectively. School Three, a boys' school, provided one Standard 10 and one Standard 9 class. These classes were used only to obtain additional data for establishing norms on the Attitude Scale (see below).

In Group One, the guidance teacher taught the program to E_1 and E_2 while another teacher taught non-vocational topics to E_3 and E_4 during the experimental period. In Group Two, the guidance teacher taught the program to 9c, and taught

his own guidance program to 9d, during the experimental period.

All classes were Pre-tested on the Attitude Scale of the Career Maturity Inventory (Crites 1973), which measures the attitudinal component of vocational maturity.

They were also Pre-tested on a measure of certainty about future jobs, and on measures of socio-economic status and parental aspiration. Post-testing consisted of the Attitude Scale, the job certainty measure, a feedback questionnaire concerning their evaluation of the program (experimental subjects only) and the High School Personality Questionnaire. Intelligence quotients were taken from cumulative record cards. The program lasted seven to eight periods (depending on the teacher) but took longer to teach owing to interruptions such as a mid-term vacation and class tests.

Hypothesis 1 was tested by analysing the Pre-post test Attitude Scale score differences of the various classes by means of an ANACOVA test. Hypothesis 2 was tested by analysing the Pre-post test job certainty score changes by means of chi-squared tests. Hypothesis 3 was tested by correlating I.Q.scores with Attitude Scale scores. Hypothesis 3a was tested by forming subgroups from the experimental subjects in each group, according to whether their Pre-post test attitude score differences were positive or negative. Mean I.Q.'s of these groups were compared by t tests. Hypothesis 4 was tested by establishing a mean attitude score for each school standard and grouping all subjects in each group according to whether their Pre-test attitude scores were above or below the mean.

Personality factor mean scores obtained from the H.S.P.Q. were compared by means of t tests. Hypothesis 4a was tested by grouping experimental subjects in each standard according to whether their Pre-post test attitude score differences were positive or negative. The mean scores on the various personality factors were then compared by t tests. Additional correlational analyses were done between socio-economic status, parental aspiration, job certainty and Pre-test attitude.

Results

Hypothesis 1 was retained for Group One ($F = 3,101, p < 0,05$) where it was found that only E_1 changed significantly. Hypothesis 2 was retained for Group One only ($\chi^2 = 4,92, 4,08,$) $p < 0,05$), where it was observed that E_1 and E_2 changed significantly (No significant change for E_3 and E_4). Hypotheses 3 and 3a were rejected for both groups (including data from School Three for Hypothesis 3). Hypothesis 4 was retained for Group One, where it was found that factors C, G and Q_3 of the H.S.P.Q. were significantly different for above and below average vocationally mature subjects (C: $t = 2,154$, $p < 0,05$; G: $t = 2,261$, $p < 0,05$; Q_3: $t = 2,972$, $p < 0,01$). The above average subjects were characterized by emotional stability, consistency of interest, self control and concern for social standards, while the below average subjects were characterized by expediency, self-indulgency and a careless disregard for socially accepted forms of behaviour. Group Two subjects were significantly different on factors E ($t = 2,127$,

Conclusions

With reference to the limitations of the instrumentation and design, it was concluded that :

(1) vocational maturity can be developed by means of a classroom program of career education;

(2) job certainty can be increased as a result of an interested participation in a classroom program of career education;

(3) intelligence is not related to vocational maturity;

(4) intelligence is not related to a change in vocational maturity, following participation in a program of career education;

(5) personality factors, associated with the concept of maturity (which was seen as a more suitable term than adjustment) are related to vocational maturity;

(6) in attempting to relate personality maturity to vocational maturity, reference should be made to the norms and standards of the social group under consideration;

(7) personality is not related to a change in vocational maturity as a result of participating in a career educational program; (membership of a school class may be a grouping variable which modifies this conclusion);

(8) vocational maturity and job certainty have a positive relationship;

(9) parental aspiration is negatively related to vocational maturity;

(10) motivation and interest are important components for the outcome of career educational programs;

(12) personality development should become an important part of career education since mature vocational decisions cannot be made by immature adolescents.

PREFACE

This Thesis is broadly concerned with career education in terms of its premises, goals and application. In a specific sense, it deals with the development of a program of career education, the application of the program and an assessment of its effects.

The immediate, personal result of a successful education in the skills and knowledge underlying career choice is that the young adult who is the subject of the educational effort, is able to deal sensibly, i.e. in a mature, considered way, with the career decisions facing him. The long term result, again in a personal sense, is that the persons self-esteem is enriched by his sense of competence and success derived from adequately dealing with his career decisions. There is little doubt that the personality development of the young adult, and his later functioning as a mature person is linked to his success or failure in establishing a satisfying working career.

Wise career decisions subsequent to leaving school have both economic and personal importance. Our society places a premium on productive, self-supportive labour. The attainment of such a state is highly valued and is a step up in the development of an individual as a person.

Career education is a way of fostering personal development by means of developing in young persons an awareness of the complex factors which contribute to career development. This thesis tries to make a small contribution to career education in South Africa.

CHAPTER ONE

Introduction to Career Education

Definitions and Philosophy

Vocational guidance in South Africa

The need for Career Education in South Africa

1.1 Introduction to Career Education

The career education movement is less than a decade old. It represents a development of vocational guidance, a development which has been based both on the growing manpower needs of Western countries and on the realization that the choice of a career is actually a process, not a point-in-time phenomenon. This realization stems from the theoretical and practical work of researchers in vocational psychology, typified by Ginzberg et al. (1951) and Super (1953, 1957) who showed that vocational thinking is a developmental phenomenon and many years of influence enter into the career choice which is made usually on leaving school. Thus the realization grew in the Sixties that the School Guidance Officer could not efficiently do his job if he concentrated solely on assisting pupils to make a choice shortly before leaving school. A further reason for the change in emphasis in vocational guidance is the fact that the nature of adult working lives has changed drastically since the early days of the guidance movement. It has been reported, for instance (Wilensky 1967, p.32) that in the United States, an average man will hold twelve different jobs in a forty-six year working life, and only one man in five will remain in the same major occupational category for his entire working life. Schools should therefore be attempting to develop in their pupils an occupational flexibility and appropriate decision making skills, which they may need at various stages of their working lives.

1.2 Definitions and philosophy

Hoyt et al. (1974) write that the first formal statements concerning career education in the United States were made in 1970 by Dr. Marland, the Commissioner of Education at that time. The loose and vaguely formulated ideas about career education soon crystallized into an attempt to integrate school education with the needs posed by an industrial society. Thus Hoyt et al. offered the following definition :

> "Career education is the total effort of public education and the community to help all individuals become familiar with the values of a work-oriented society, to integrate these values into their personal value systems, and to implement these values into their lives in such a way that work becomes possible, meaningful, and satisfying to each individual". (p.15)

This extreme work-value laden approach is not exclusive to Hoyt and his colleagues. A British observer, Brennan, has been quoted by Watts and Herr (1976) as follows :

> "The movement (career education) being described as 'a staggering reassertion of the importance of the work ethic by an administration which has been concerned with the deleterious effects of that sort of individual autonomy which, lacking a central core of shared belief, seemed likely in the late 1960's to threaten the very fabric of American Society'".

On the whole, the American approach has been characterized by an underlying philosophy which basically sees work as noble, and contributing to a sense of self-worth. Work is seen as a primary source of income, and also self-esteem, and thus becomes an essential ingredient of happiness. Education, in its general sense, is seen as a preparation for

life and hence preparation for and achievement of a successful career cannot be neglected in an education which promises to prepare for life. The prerequisites of successful careers are seen as good mental and physical health, good human relations skills, a commitment to the work ethic, an acceptance of discipline, and so on. The development of these skills cannot be totally the responsibility of the school and thus the American concept extends out into the community attempting to integrate the school, the home and other community institutions into a total approach towards this 'education for life'.

The British approach differs from the American in a number of ways. Watts and Herr (1976) discuss these :

> "At root, the main focus of careers education in Britain has been on the concept of career decision-making. The D.E.S. (Department of Education and Science) survey defined three objectives :
>
> 1. To help boys and girls to achieve an understanding of themselves and to be realistic about their strengths and weaknesses.
> 2. To extend the range of their thinking about opportunities in work and in life generally.
> 3. To prepare them to make considered choices". (p.129)

These objectives contain three components - self-awareness, opportunity awareness and decision making. The main objective of British approaches, e.g. Hayes and Hopson (1971) has been to help students to acquire concepts, skills and information that will help them to formulate and implement their career decisions in the immediate and distant future.

This objective has led to fairly specific curricula, focused on the task of career decision making. However, Watts and Herr believe that a more philosophical standpoint is currently causing some confusion as to what the objectives of career education should be. This standpoint takes two forms. The first is a plea that the curriculum and structure of the school should be more relevant to the world of work. This aspect is similar to the overall conceptualization of the American approach. Taken to an extreme, it can imply that the pupil is conditioned by his school experience to become a happily adjusted working unit in his society.

The second standpoint is diametrically opposed to the first. Here career education focuses on the needs of the individual and tries to equip him to be an autonomous being, able to choose his working roles according to his needs, viz. the focus is on the person, not on the society.

These two approaches, viz. social vs. individual are important for they are related to some of the basic imperatives of our society and educational system. At present, career education in South Africa is in its infancy and has focused on essentially the same objectives as those outlined above by the British Department of Education and Science. Watts and Herr (Ibid)point out that career education must inevitably be linked to the economic situation, and the dichotomy between social development and individual development. Let us consider the following by way of illustration.

Career education should firstly be seen as related to life opportunities via work. This view requires us to take a broad view of career education, i.e. we should understand that career education is not restricted to trying to help young adults make sound career choices but necessarily is related to their future lives as a whole, especially in a capitalistic society where considerable variation in status and living conditions, as a result of occupation, exists.

With this view in mind, Watts and Herr (Ibid) outline four approaches. Firstly, career education could be used as a form of social control in that individuals would be adapted to accept the employment opportunities open to them. The allocation in a meritocratic society, would be based on ability. This is of course a theoretical argument in that in practice, the principles of merit placement rarely apply, particularly in an ethnically divided society such as ours. In point of fact, one should consider whether career education should aim to raise the aspiration of people for that which they cannot attain, or whether they should be taught to be satisfied with what is available to them.

This argument leads to a second approach, that which sees career education as an agent of social change. In practical terms, a potent agent of social change can be to raise the aspirations of people and then to frustrate them by denying them the opportunities to implement their aspirations. This is of course a political issue and, at the present time, has greater importance for the non-white races in our country.

The third approach aims at individual change. We have experienced some of this already in the equalisation of work opportunities for both sexes and the conscious destruction of occupational-role stereotypes. The problems associated with this approach are firstly psychological in that the upward mobility promoted by this approach causes adjustment problems, and secondly social in that pupils who are made aware of wider horizons than those accepted by their sub-culture may find that society has not provided job opportunities for them. This is a similar problem to that raised by the social change approach.

The fourth approach has been termed the "non-directive" approach. Here the primary aim is simply to make students aware of all the job opportunities available, and to help them to be more autonomous in their choices, e.g. to be free of the influence of parental aspiration. This approach recognises that different value systems exist for different people. It ignores the question of whether society can cope with the raised 'level of consciousness' of the pupil. Also, a condition of 'overchoice' (Toffler, 1971, p.257) may arise, i.e. there are so many alternatives that decision making becomes very complex.

We realise therefore that each approach has social-philosophical problems. The issue here is to recognise that whatever approach is adopted, there will ultimately be an impact both on the individual and society. The educational system could then do well to consider the outcome of its

programs in the widest terms possible.

1.3 Vocational Guidance in South Africa

The current efforts of our schools to provide vocational guidance stem from the guidelines laid down by the Committee for Differentiated Education and Guidance (1971). In section 18.5.3 of the Report, recommendations concerning a program for a school guidance service were set out. In relation only to vocational guidance, a service was seen as having to provide information with regard to job structure and job availability; as having to provide a counseling service "so that they (the pupils) will eventually be able to make decisions on their own responsibility", and as being able, through the ability of the teacher, to assist the pupil to grasp the responsibility associated with this decision making. These recommendations impose a heavy task on the teacher as the methods, techniques and curricula associated with the conduct of his work were not set out in the report.

The guidelines set out by the Committee have been elaborated by Meyer (1975), the Director of Education in the Cape Province. He offered the following definition of a vocational guidance system :

> "Firstly, a general and vocational information service to assist pupils in obtaining information on .... occupations available ....
>
> .... Secondly, such a guidance programme should make provision for a self-inventory or self-assessment service, i.e. a service concerned with assisting the individual in obtaining information pertaining to his own abilities, interest, etc.

> Thirdly, a counseling service, i.e. a service aimed at helping the individual to evaluate his personal assets and liabilities in relation to the opportunities and requirements of available careers ...."

This system, as outlined by Meyer, focuses on the provision of a service and pays scant attention to what the outcome of such a service should be. This is an issue concerning the difference between vocational guidance and career education. This is a good stage at which to draw a clear distinction between these two, as they each encompass different objectives, and will cause confusion unless the difference is clearly stated.

The Committee for Differentiated Education (Ibid) noted that the term guidance has a highly variable meaning and that specific requirements for this term should be laid down (p.119). They further noted that the term guidance should be reserved for "a generally advisory or informational aspect of a broader service ...." (p.117). They further noted that the term 'education' referred to a "formative relationship between teacher and pupil".

The American use of the concept of career education does not only relate to the inculcation of Protestant work values. Hoyt et al. (Ibid) also offered the following definition :

> "Career education is a comprehensive and organized instructional program that enables school going youth to acquire the knowledge, skills and attitudes necessary for developing personal plans for lifelong learning and for productive, personally rewarding employment in a rapidly changing society".

The British definition, as we have seen, is narrower than this, focussing on the objective of career decision making, but nonetheless implying a development of knowledge and ability. From these two approaches, the common area seems to be the development of knowledge, skills and attitudes pertaining to the making of career decisions. Vocational guidance, on the other hand, should be understood as the provision of information and advice only.

Examining what the Committee has proposed, and what Meyer has outlined, it can be seen that South Africa has a system of guidance, but not of career education. This system of guidance is seen as an auxiliary to the educational system and the counseling aspect, "the core of the school guidance service", is seen as helping pupils "so that they will eventually be able to make decisions on their own responsibility". (Report of the Committee, p.204). This is presumably the ultimate object of the guidance service as a whole. My argument is that this object, with regard to vocational decision making, would be better served by thinking of career education, rather than vocational guidance, as a means to this end.

1.4 The Need for Career Education in South Africa

There is no point in attempting to replace one system with another unless we can show that the new system is superior to the old. This is the case with career education vs. vocational guidance. Because the concept of career education

is now widely used in America and Britain, this does not mean that it implies anything better than the traditional vocational guidance it is supplanting.

It has been shown that vocational guidance is concerned with the provision of information and information facilities. This is how it is conceived and defined in South Africa. Career education on the other hand is concerned with the development of knowledge and skills which can be applied to career decisions. Watts (1973) has criticised the traditional guidance model on the basis of it creating a passive and static information-taker , a person who has a reduced sense of involvement in his own life decisions since he is limited to seeking advice. The provision of a counseling service is an advance on the traditional guidance model since counseling extends the area of guidance from careers to personal and educational matters as well. This is important since few, if any, vocational problems do not involve personal, family or educational issues. The Committee (Ibid) has also recognised the need for counseling, but counseling is of little value if it occurs in a vacuum. A thorough process of counseling inevitably involves a learning process. Satisfactory vocational counseling can only occur if the counsellee has a conceptual vocabulary at his demand and has had a range of experience to judge by and to base his decisions on. The learning necessary to benefit from such counseling cannot occur in a system of information giving. Such learning can only occur in a system of career education.

In 1975, a conference was held at the University of Cape Town, for the following purpose :

> ".... to assist delegates to give practical help to their pupils when planning for life and particularly for their careers, and to provide a practical forum for the exchange of teaching programmes and teaching methods ...." (University of Cape Town, 1975)

This conference was designed to help guidance teachers to do their job better. They are provided only with official guidelines, detailing the areas or topics they should cover in each standard . The rest is up to their own resources.

On the basis of the foregoing discussion, there is a case to be made for career education in our schools. From a practical viewpoint, career education programs will be of benefit to both teacher and pupil, by providing them with an integrated and theoretically valid approach to the problems of career choice. The implementation of career education will not mean that vocational guidance will fall by the way, it will mean that such a guidance service, i.e. an information service, will be able to perform a better service as it will be dealing with pupils who are educated in the important aspects of career choice.

1.5 Summary

This chapter has dealt with the American and British approaches to career education, and the South African approach to vocational guidance. Drawing on the analysis of the foreign systems, the argument was put that the South African system has a

limited objective, which is seen as the provision of advice and information. In terms of current thinking, a careers education approach to vocational guidance at school is better suited to provide pupils with the knowledge and skills needed for their future career decisions, than the existing guidance system.

CHAPTER TWO

Theoretical principles of career development

Implications of Super's theory for the objectives of Career Education

Evaluation of Super's Theory

Practical considerations

A Career Education Program

2.1 Introduction

This chapter is concerned with developing a career education program. Such development should be based on clearly conceived objectives, derived from theoretical and practical considerations. The emphasis in this study is on the need for pupils to develop an ability to think constructively, and to plan clearly, about and for their future. The concern is therefore with the psychological aspects of career education. It is obvious that a full career education program has to be based on wide educational objectives, on practical considerations such as available structure and resources, and so forth. These matters will have to be dealt with elsewhere as they are not properly the direct concern of the psychologist.

2.2 Theoretical principles of career development

There are a number of reasonably heuristic theories of career development, such as Roe (1956) and Holland (1959). In terms of extensiveness, counseling utility, research support and research applications, Super's (1953, 1963) theory of vocational choice and vocational development is by far the best available at the present time.

Super has adopted a developmental approach to the study of careers. He has based this aspect of his research upon a general developmental hypothesis that man passes through stages in his personal development. He has followed the schema developed by Buehler (1933) to provide conceptions of the de-

velopmental stages. His assumption in this case is that vocational tasks reflect larger life tasks. Therefore the view that vocational behaviour undergoes development is both conceptually valid and useful.

The other aspect of Super's work is his conception of vocational choice. In this, he has been influenced by Rogers (1951) and Bordin (1943). Bordin, in particular, proposed the notion that responses to vocational interest inventories represent a projection of self-concept in terms of occupational stereotypes. This view naturally extends to the belief that an occupation is chosen in terms of its correspondence with a self-concept. This was the major tenet of Super's formulation, (1953) which underwent refinement in later years (1957, 1963). Considerable research has been done over the years which provides support for this notion. An example is the study of Morrison (1962) in which he predicted that nursing students' self perceptions would be more similar to their occupational conceptions of a nurse than to a teacher, and that teaching students' self perceptions would be more similar to their conceptions of the teacher than of the nurse. He used the Q sort technique to measure self-and occupational concepts. His results were positive. Further studies, indicating support for self-concept idea are well discussed in Osipow (1973). The implications of the notion of self-concept implementation in career choice will be discussed further on.

For his research into career development, Super developed the concept of <u>vocational maturity</u>. He defined this as :

> "readiness to cope with the development tasks of one's life stage, to make socially required career decisions, and to cope appropriately with the tasks with which society confronts the developing youth and adult". (1973, p.4).

The definition is normative, i.e. vocational maturity is assessed by referring the individual's vocational behaviour to the vocational behaviour of his peers.

Super proposed that vocational development proceeds by means of five developmental tasks. The first one is of particular concern here. Entitled, ' Crystallization of a vocational preference', the individual has to, in this phase, formulate ideas about work appropriate for himself. It also requires him to develop occupational and self concepts that will mediate his tentative vocational choice by means of relevant educational decisions, i.e. decisions concerning his future vocational training.

This task typically occurs during the 14-to 18-year old range. Some of the attitudes and behaviours relevant to this task are awareness of relevant factors, differentiation of interests and values, and appropriate planning (Super, 1963).

This phase or task is followed by the process of 'Specification of a vocational preference'. Here a general career decision e.g. wanting to work with people, or with facts and figures, is narrowed into a specific choice. This phase is prominent in our society, usually between the ages of 18-to 21-years. The schools' concern with vocational development

will naturally focus on these two phases of crystallization and specification.

Super and his associates have conducted extensive research into the career development of a sample of 265 boys, followed up over a twenty year period (Super and Jordaan, 1973). Part of their research has been concerned with establishing the content validity of proposed measures of vocational maturity, such as 'orientation to vocational choice', assessed by the student's concern for vocational problems and his effectiveness in using available resources to cope with these; and 'information and planning about the preferred occupation', assessed by the specificity and extent of these two factors. By following up their sample at age 25, they were able to establish which constructs had predictive validity, i.e. which of the measures made at the 9th and 12th grade levels were positively correlated with later career success. Vocational maturity in the 9th grade, as judged by the amount of occupational information known, and by the degree of planning and interest maturity, was significantly related to career success in young adulthood. Awareness of the choices to be made, and of the information and planning bearing on these choices, measures made in the 12th grade, were found to have predictive validity for later career success. (Career success was defined as a person becoming stabilised in his chosen career, i.e. his job moves are all related to career establishment). All the implications of this long range study have not yet been published. What is available though has an important bearing on career education. The results discussed above show that there

are identifiable behaviours, which develop during adolescence, which are related to career success in early adulthood. Super, Kowalski and Gotkin (1967) noted that vocational maturity was generally predictive of career satisfaction, self-improvement and occupational satisfaction. It was also found (Super and Overstreet, 1960) that intellectual ability is related to vocational maturity.

In summarising overall research on career development, Super and Jordaan (1973) reached the following conclusions :

> "Vocational maturity has been shown by all the above studies to be a developmental characteristic which increases with age; .... It is also a set of characteristics some of which are related to socio economic status and verbal intelligence while others are independent of these basic determinants of human behaviour. Some are cognitive and some are attitudinal; .... " (p.14)

2.3 Implications of Super's Theory for the objectives of Career Education

The work of Super and his associates, has an important bearing on career counseling and career education. For counseling, an appropriate model would be that a clear self concept, in vocational terms, and a clear understanding of the demands and rewards of work is needed before a realstic decision can be made. The basis here is the established trait-and-factor approach (Crites, 1969, pp.90-91), with important additions, referring to a full self understanding, involving values and attitudes in addition to an understanding of abilities and interests.

Counseling with vocationally mature pupils would firstly be

based on a knowledge of their appropriate level of maturity. With senior high school pupils, for example, attention should be directed toward the understanding of vocationally and personally relevant information, which will serve as the basis of decisions to be made. Counseling with vocationally immature pupils should, on the other hand, first be directed towards orienting the pupil to the tasks required by the vocational development stage that he is negotiating. So, for example, the vocationally immature senior pupil might not have the same sense of responsibility towards his career decisions, or might not exhibit the same degree of planfulness, as a mature peer would.

The relevance for career education is that there are certain aspects of thinking and behaviour that are important to career success after school.A career education program should aim to facilitate the development of these aspects, i.e. aim to develop the vocational maturity of pupils. This could be done by developing the self-awareness of pupils (the self-concept dimension of career choice), their awareness of occupational demands and rewards (to enable them to match self-concept to an occupational concept) and their awareness of the need to have the relevant information, to plan ahead, and to be independent in their thinking (dimensions of vocational maturity related to career success), or, in other words, to develop the correct attitudes towards planning and thinking about careers.

2.4 Evaluation of Super's Theory

Super's research programs have revealed many of the basic processes and developmental tasks that are necessary for a satisfactory establishment of a working career. His concern with self-concept implementation however has caused him to neglect the importance of non-personal factors in the process of career choice. Crites (1969), in reviewing various theories of career choice, lists these factors as accident or chance happenings, economic conditions, socio-economic status, school curriculum, sub-cultural values, family influences etc. Hart, Rayner and Christensen (1971), in reviewing the career histories of 60 men, found evidence indicating a clear relationship between occupational level and planning. Their conclusion was, amongst others, that much of what determines career entry, especially in the lower occupational levels, is based on chance.

In the present study, little attention has been given to these non-personal factors. Their influence is subtle, pervasive, and set the matrix within which personal factors, such as self-concept, operate. The importance of these non-personal factors is acknowledged, but a decision has been made to concentrate on those aspects of career choice and development which can be influenced by the person himself.

2.5 Practical Considerations

With the objectives of a career education program established, attention now turns to the pupils who might benefit from such

a program. On the basis of the research discussed above, one can assume that pupils in a particular age group will vary with respect to their vocational maturity, depending on their intellect and life experience. A program would thus have to take into account the differing levels of vocational maturity. Roos (1974), in examining the data from the 1969 Talent Survey of South African matriculants, found that 58 per cent of the sample (N > 26 000) had a reasonable degree of certainty about their future. No measure of realism of choice was made, so there is no way of knowing whether this group had made good decisions or not. The figure of 42 per cent uncertainty is large and indicates that nearly half the matriculants of that year could have benefited from a further development of their vocational thinking while at school.

Van Vuuren (1975), in examining the same data, made an analysis of the differences between the certain and uncertain pupils and concluded that (1) uncertain pupils are more individualistically oriented and seem more independent in their thinking and (2) they tend to be of a higher intelligence (not significant), experience more frustration and have a lower self esteem. Unfortunately, no other studies dealing with vocational aspects of the South African senior pupil are available (Stimie, 1975).

These results suggest that a program should take into account differing needs on the part of the pupils. 'Certain' pupils may need an opportunity to evaluate their choices and thus confirm or disconfirm these prior to implementing them.

'Uncertain' pupils need to develop their self esteem. This is an important factor in vocational choice. Korman (1966, 1967, 1969) has demonstrated that people use self esteem as a moderator variable in the occupational choice process. His 1966 study showed that high self esteem individuals are more likely to implement their self-concept through occupational choice than are low self-esteem individuals. It follows then that low self-esteem and choice uncertainty are related. One can legitimately question whether self-esteem can be enhanced through participation in a career education program. It may be possible though that learning about self aspects, work aspects and the relationship between these may develop confidence in one's ability to make a choice.

The choice of an age group for whom to direct a program to is based partly on convenience, and partly on the needs of pupils. Senior high school pupils will have to implement their career decisions relatively soon, in their time perspective, and thus need to have a clear understanding of factors and processes involved in their decision making. It is also convenient to write a program aimed at senior pupils as the language and concepts used do not have to be excessively simplified for their benefit.

2.6 A Career Education Program.(Listed as Appendix No. 7)

2.6.1 General Points

The overall conception of the program is based on the goal of developing vocational maturity. Following the facts emer-

ging from the consideration of the work of Super and his associates, attention was focused on developing a planning orientation to career choice and an awareness of the relevance of personal and job factors. Aspects such as occupational information, while a necessary part of any career education program, are only touched upon as this can be better dealt with by the teacher, according to the specific circumstances. A section on career choice problems is included to give pupils an opportunity to practice making decisions and using their knowledge in a planful way. Super appears not to have specifically considered decision-making as a vocationally relevant skill, but there are other theories and research on this topic to indicate that decision making skills are important, e.g. Gelatt (1962) and Yabroff (1969).

Throughout the program, the emphasis is placed on class discussion. Guidelines are offered for the teacher with respect to what to say and do with the class, but he or she is free to follow his or her own approach. The program was planned to be taught in 7-8 periods.

2.6.2 The elements of the program

(a) Teacher's introduction

This section outlines for the teacher what the program aims to achieve and describes, in outline, what the program consists of. The teacher is required to introduce the program to the class (outline given) and should then start with Section 1a.

(b) Attitudes

The first section deals with attitudes. Illustrative examples are given and a definition is offered. A stimulus sheet forms part of this element. It consists of three statements reflecting attitudes to career planning, and a further set of seven statements reflecting attitudinal orientation towards planning. This section was incorrectly titled "Career Choices". It would be more appropriate to term it, "Career Planning". The first three statements are used to illustrate what attitudes are and the following seven statements are evaluated by each class member on an 'agree/disagree'basis. Their evaluations form the basis for discussion, analysis and learning. A teacher's summary concludes this section.

(c) The World of Work

This section is designed to orient pupils towards the demands and satisfactions of work. This is seen as aiding their overall career planning by broadening their vision. Career satisfaction is seen here as being partly due to one being able to cope with work demands, and from deriving satisfaction from the job.

(d) Interests

This section defines interests and shows how interests are related to jobs and careers. It is stressed that interests are not the most important determinants of career choice. This point was made to counteract the free use of interest tests in high school as a basis for vocational decisions. A

summary is made for the teacher.

(e) Abilities

This section emphasises the relationship between ability and work success. A definition of ability is given and various work areas, requiring different abilities, and sometimes the same abilities, are described. A teacher's summary is provided.

(f) Values and Needs

This section explains how value satisfaction accounts for our deepest feelings of satisfaction. Needs are seen as giving rise to our values. Practical examples of need satisfaction through work are given. Values are defined as being our strongest needs. Some jobs are discussed in terms of the needs which can be satisfied through and in the work. The class is asked to talk about jobs they are interested in and to examine these from the point of view of need satisfaction. As usual, a summary is made for the teacher.

(g) Summary

An overall summary is made, covering the important aspects of each element.

(h) Vocational Choice Problems

The summary is followed by a set of choice problems in which each problem has a description of the factors to be considered, and potential choices to be made. Each pupil answers these problems and then a class discussion is based on their reason-

ing behind the answers. The problems are in a multiple choice format and were based on the typical problems facing school leavers, and cover a range of careers. Although a set of guiding answers is given, it is emphasized that there are no really right or wrong answers; some are merely better than others.

2.6 Summary

This chapter has been concerned with developing a career education program. An analysis of Super's (1953, 1963) theory and research was done and the facts emerging from this, concerning career development, were used in formulating the objectives of a program. The concept of vocational maturity was used as the guiding idea behind the program.

The implications of some South African research results on vocational certainty were considered. Finally, general considerations underlying the program were discussed and the elements of the program described.

CHAPTER THREE

Studies dealing with the development of vocational maturity

Studies dealing with factors influencing vocational maturity other than experimental manipulation

Conclusions based on the literature survey

Evaluation of career education programs

3.1 Introduction

It is important that any educational attempt be couched in such a way that an assessment of the success or failure of the objectives of such an attempt can be made. The applied aspect of this Thesis is directed at an assessment of the program described in the previous chapter. To evaluate the effectiveness of any such program poses complex problems. Crites (1964) has identified two of major importance : (a) the construction, standardization and validation of an appropriate measure of vocational maturity, which is the dependent variable, and (b) problems of design and analysis, which, if not correctly dealt with, can lead to ambiguous results.

Problem (a) has a solution in that a few standardized instruments assessing various aspects of vocational maturity do exist. Practically speaking, though, only two such instruments are currently available. These are Super's 'Career Development Inventory' (1971) and Crites' 'Career Maturity Inventory' (1973).

Various approaches to a solution of problem (b) can be assessed by examining relevant research and drawing conclusions based on the outcome of such research. In addition, a literature survey will produce evidence related to the outcome of various programs designed with the objective of developing vocational maturity, and will also point up factors associated with success or failure of this objective.

3.2 Studies dealing with the development of vocational maturity

It must be borne in mind that the concept of vocational maturity refers broadly to an aspect of general development. This breadth allows the concept to be defined in many different ways. These definitions differ from study to study but all refer to various aspects of vocational behaviour.

Hoyt (1955) devised a group program for high school pupils in which he set his objectives as (a) increased satisfaction with choice, (b) increased certainty of choice, (c) increased realism of choice and (d) appropriateness of certainty in terms of realism. He instituted group discussions with small groups of uncertain pupils (N = 5 - 7) in which the importance of knowledge of own abilities, interests, values and personality characteristics were discussed. One group session was devoted to a discussion of the Strong Vocational Interest Blank. Compared to a group of controls, Hoyt found that all his objectives were met, using a variety of questionnaires and an extensive definition of realism, which included interest congruence and intelligence. This study indicates that a structured consideration of various aspects of career choice can lead to an enhanced degree of satisfaction and certainty, and a clarification of career goals. The study does not give details related to individual responses or the matching of controls.

Crites (1971) reports a number of unpublished studies which are related to the development of vocational maturity.

Bovee (1967) found that two experimental groups, one a pre-counseling-plus-counseling group and the other a counseling only group, both showed significant gains in their attitude scores, ($p < 0,01$) measured with the Attitude Scale of the Career Maturity Inventory. A control group showed a non-significant change in score. No other details are reported.

Guerriero (1967) administered the Attitude Scale before and after the school year to 143 male experimental subjects who received "intensive vocational counseling" and 111 male subjects who were not specially treated. All students had free access to the regular counseling services of their schools. There were no significant 'gains' differences between the groups. The absence of a counseling control may well account for the lack of significance. It is also possible that during a one year period, normal influences affecting maturation may exert a greater effect on vocational maturity than special counseling.

Schmieding and Jensen (1968) assessed the effects of a 22-hour "occupations" class, extending over an 8-week period, on the Attitude Scale scores of 78 11th and 12th grade American Indian pupils, divided into an experimental and control group of 34 pupils each. (The "occupation" class dealt with topics related to jobs and working). A Post-test Only analysis indicated that there were no significant differences between experimental and control group means. However, the conclusion which the authors reached, i.e. that "... short-term treatment has a limited influence on firmly

established impressions and attitudes" (p.122) is not necessarily valid as their groups were mixed with respect to grade. Crites (1971) has shown that mean Attitude Scale scores vary from grade to grade and that unequal distributions of subjects from the two grades in both groups may therefore result in mean initial attitude scores for the two groups being significantly different, with a consequent effect on the post-test attitude scores.

Goodson (1969) ran a didactic study with four groups of first semester college freshmen. There were three experimental groups : (a) subjects who met in a large group and received occupational and educational information; (b) subjects who met in a large group and received information supplemented with self-analysis of test scores; and (c) subjects who met in small groups (7 each) and engaged in self-analysis, with informal presentation of information. Each experimental group comprised 52 subjects, the control group comprised 72 subjects. Goodson found significant ($p < 0,05$) differences, between the control group and each of the experimental groups on a Pre-Post-test design, using a 'gains' analysis of Attitude Scale scores.

Flake et al. (1974) gave special vocational counseling, involving testing, test interpretation and career counseling to a group of 17 10th grade pupils who had below-average scores on the Attitude Scale and the Self-Appraisal subscale of the 'Competence Test' (the Attitude Scale and the Compensation Test together comprise the whole Career Maturity

Inventory). A particular aspect of the counseling was that in interviews, the expression of mature attitudes received verbal, and non-verbal e.g. smiling, reinforcement. A control group was selected to match the experimental group. The experiment ran over a six-week period. The experimental group showed a significant increase in their attitude scores, and a non-significant increase in their Self-Appraisal scores. The control group attitude scores remained constant while their Self-Appraisal scores showed a decrease. This decrease was apparently not statistically analyzed. Overall, the experimental group total score showed a significant gain, as compared to the control group. Unfortunately, while this study suggests that counseling can enhance vocational maturity, it is difficult to say which aspect of the counseling used was responsible for the results obtained.

Healy (1974) assessed the efficacy of what he termed "a replicable group career counseling procedure". This procedure ran over five sessions, concerned with helping clients to identify their needs, to explore different occupations, to decide on the kind of occupational information they needed to appraise and rate self aspects, to identify possible problems and to solve these problems. Thirty-five college freshmen responded to an invitation to participate in the experiment. At the start of counseling, they rated the certainty of their career plans and completed various subscales from the Career Development Inventory (Super 1973). The counsellors were senior students with no previous counseling experience but who had undergone fifty

hours preparation for the study. The results indicated significant differences ($p < 0,05$) in three areas. Subjects became more certain about their careers, they felt they knew more about occupations and they had become more specific in their planning. These results were replicated in a second study involving 24 college students who were uncertain about their career goals.

3.2.1 Evaluation

There is a shortage of studies dealing with career education, as such. The reported studies, with the exception of Goodson (1969) all used a counseling approach. On the whole, these studies have indicated that structured procedures, involving a consideration of vocationally related aspects, such as occupational information, self appraisal, identification of goals, and so on, can lead to a development of aspects of vocational maturity, i.e. attitudes, certainty and planning behaviour. Some studies, such as Healey (1974) did not use adequate controls which decreases the validity of the results to some extent. Nonetheless, in Healy's case, for example, the fact that pre-post-test scores showed improvements is very suggestive of an improvement in vocational maturity.

3.3 Studies dealing with factors influencing vocational maturity other than experimental manipulation

(a) Intelligence

A number of studies have indicated that there is a strong relationship between intelligence and vocational maturity.

This was first noted by Super and Overstreet (1960). Asbury (1968) found an r of 0,28 between the Attitude Scale of the Career Maturity Inventory and the Otis Quick Scoring test on a sample of 63 8th grade boys. Dutt (1968) found an r of 0,42 for 257 9th grade boys. Crites (1971) reports further studies which noted significant correlations between various measures of verbal intelligence and the Attitude Scale. In general, he noted that the reported r's varied from 0,17 to 0,57, depending on the subjects and the intelligence tests used.

(b) Personality

Bartlett (1968) compared the responses of 150 subjects, of both sexes, aged 16 through 21 years, on the Adjective Check List and the Attitude Scale of the Career Maturity Inventory. An analysis of variance indicated a positive relationship between the maturity of vocational attitudes and the A.C.L. sub scales of 'Self-Confidence', 'Achievement', 'Autonomy' and 'Dominance'. Hollender and Schalon (1965) had earlier found positive correlations between A.C.L. scores and Attitude Scale scores for a sample of 112 male and female clients from a university counseling service. The significant r's were on 'Achievement' (0,21), 'Endurance' (0,26), 'Order' (0,21), 'Intraception' (0,32) and 'Aggression' (-0,20). It should be borne in mind that students who make use of a counseling service may be different from those who do not, and that this difference may be related to personality variables, viz. the sample used may not be representative of the population at large.

Crites and Semler (1967) did a follow-up study of a group of 12th grade boys and girls (180 males and 166 girls) who had been measured in the 5th grade on a variety of measures of achievement, adjustment, intelligence, personality and socio-economic status. The main results of this study were that both educational achievement and vocational maturity (Attitude Scale Scores) were related to earlier and later adjustment status; and second, educational achievement and vocational maturity are related to one another. However, when common adjustment variance was partialled out, this latter relationship disappeared. Crites' (1971) conclusion was that adjustment is a suprafactor, accounting for both educational achievement and vocational maturity. Purkey (1970) has indicated in his book on the self-concept and school achievement that school performance varies according to the self-concept of the child.

Super (1957), as we have seen, maintains that the self-concept is vital to an understanding of vocational choice. Munley (1975) investigated the relationship between the Eriksonian (1963) psycho-social developmental model and vocational choice and vocational development. He found that students who made adjusted vocational choices and who developed mature career attitudes had also been more successful in resolving the first six psycho-social developmental crises outlined by Erikson.

If we consider the results of Crites and Semler (1967) taken in conjunction with the work supporting Super's theory

of the self-concept (discussed in the previous chapter), and with Munley's results, there seems to be a case for regarding general personality development and adjustment as being associated with vocational maturity. This is of course the assertion made by Super (Super et al., 1963). The results of van Vuuren's (1975) study, discussed in the last chapter, in which he found that vocationally uncertain pupils differed from vocationally certain pupils, on a number of personality variables, associated with a general adjustment concept, adds weight to this argument. There is evidence therefore, that various personality variables, associated with the concept of adjustment, are related to vocational maturity.

(c) Background factors influencing vocational maturity

Super and Jordaan (1973) concluded that vocational maturity was related to, amongst others, socio-economic status. This conclusion was derived from the findings of the Career Pattern Study (Super and Overstreet, 1960), in which it was found that exposure to opportunities for the arousal and development of interests and abilities was related to vocational maturity. These opportunities are associated with socio-economic status.

Crites (1971) has, however, reported on a number of studies which indicate that socio-economic status is not related to the Attitude Scale scores, e.g. Harris (1966) and Cover (1968) both reported non-significant r's of -0,02 and -0,13 respectively between Attitude Scale scores and socio-economic status, measured by scaling the father's educational level

and occupation. Harris used 306 College students in his sample and Cover used 162 high school pupils.

The apparently conflicting conclusion to be drawn from Super and Jordaan (1973) and Crites (1971) may be due to the fact that Super and Jordaan were referring to a broad definition of vocational maturity while Crites was referring specifically to results obtained on the Attitude Scale, which measures only one aspect of vocational maturity.

Since vocational maturity is seen as part of general human development, it is more than likely that vocational maturity is influenced by many of the life experiences which act together to produce the functioning person. Socio-economic status is a collective concept, encompassing widely differing experiences. While Super and Jordaan (1973) may be correct in their conclusion, it is possible that socio-economic status as such is too gross a measure to show a relationship to vocational maturity, as measured by the Attitude Scale.

The interrelationship between vocational maturity, vocational certainty and vocational realism is complex. At this point in time, there is not sufficient clarity as to whether or not vocational certainty is an indicator of vocational maturity or not. For instance, a vocationally certain adolescent may be realistic in his aspirations, and would thus be vocationally mature, or he may be unrealistic, aiming too high or too low. He would be vocationally immature since he is not realistically assessing his capabilities. Kerckhoff and Huff (1974) examined the influence of socio-economic

status, I.Q., school performance and parental educational aspiration for the child, on 9th and 12th grade white males. They found that parental aspiration had an influence on the child over and above the other variables. Although their study was concerned with educational aspiration, it is possible that a more general occupational aspiration is also influential on the child's planning. So, a child who is influenced by his parents'aspirations for him may be resistant to changing his attitudes. If these aspirations are unrealistic, then the child is likely to be vocationally immature.

Parental aspiration (which is related to socio-economic status, see Haller and Portes, 1973), may then be a factor which has a bearing on the child's level of vocational maturity, and the child's susceptibility to attitude change.

3.4 Conclusions based on the literature survey

The research reviewed and the ideas discussed above lead to a number of conclusions of practical significance.

3.4.1 Research models

There appear to be no research articles, published in widely obtainable journals, related to an educational attempt at developing vocational maturity. All but one of the available reports, refer to counseling approaches to this problem. In general, these studies have indicated that beneficial results can accrue to such efforts. These have been reported variously as increased certainty of choice, increased plan-

fulness, an improvement in vocational attitude scores and a wider knowledge of occupations. Such studies have been conducted with males and females, over a wide age range and of differing educational status. In general, the more convincing type of study has involved control groups and results, usually derived from a Pre-Post-Test design, have been subjected to a 'gains' analysis (see Huck and McLean, 1975).

3.4.2 Instrumentation and research definitions

As has been mentioned, the operationalising of research definitions imposes a limitation on research. This is usually overcome by using a number of assessing instruments in order to cover a range of variables. In the case of research on the experimental development of vocational maturity, few standardised instruments are available. Many of the research studies discussed above used only the Attitude Scale of the Career Maturity Inventory as their measure of outcome. An alternative instrument, recently developed, is Super's Career Development Inventory (1973). This instrument while appearing to have a sound theoretical basis, is culture bound and would have to be modified for use in other countries (Super, 1973, p.37). The Attitude Scale of the Career Maturity Inventory on the other hand is relatively freer from cultural content and is more suited for limited administration times. (See Appendix No. 4 for an example of the Attitude Scale). Westbrook and Cunningham (1970) have been developing an instrument based on a cognitive measure of vocational maturity. This instrument has not been satisfactorily researched, however, and is not yet available for

use.

Non-standardised measures of vocational maturity have been used, as in Hoyt's 1955 study in which he assessed certainty and realism of choice. Such measures add to the range of outcome being assessed and it seems that a more satisfactory design would attempt to include as many conceptually valid, even though unstandardized, measures of outcome as possible.

3.4.3 Factors influencing vocational maturity

Research indicates that certain personality variables, generally referred to as adjustment variables, are connected with vocational maturity. The concept of adjustment refers to an ability to form normal relationships, to have normal levels of drive and anxiety,and various other factors related to accepted norms of social functioning. See, for example, van Vuuren's use of the concept (van Vuuren, 1975). These results lead one to anticipate that marked personality deviation from the normal will be connected with vocational immaturity. What has not been made clear by published research is whether such personality deviation can actually interfere with the potential beneficial effects of a program. In other words, the concern here is with extrinsic factors which can account for the failure of the program.

A further factor related to vocational maturity, assessed by means of the Attitude Scale, is intelligence. The available evidence strongly suggests that a variation in intelligence will account for a variation in vocational maturity. Re-

search has not specifically linked intelligence to an ability to derive benefit from career education programs but since intelligence is related to academic achievement, one might expect that intelligence will be related to the outcome of such programs.

It has also been suggested that parental aspiration for the child may have a bearing on the child's susceptibility to change his attitudes related to career development.

3.5 Evaluation of career education programs

Super (1973) has discussed four considerations applying to evaluations of career education programs. These are : (a) the relevance of the instrument in question to the objectives of the program, (b) the degree to which a program has been developed to attain its declared objectives, (c) the amount of impact a short-term program can have on a person with a number of years of educational and life experience behind him and (d) the limitations of one or more instruments which can be administered in a school period.

(a) The relevance of the instrument

For the present study, the program used has been formulated with principles of career development, derived from Super's research and theory, in mind. The instrument selected, the Attitude Scale of the Career Maturity Inventory, has both theoretical and practical significance in assessing vocational maturity. The research objectives in the present case are not restricted to attitude changes as such but aim for

an overall development in vocational maturity. To this end, other types of assessments have to be included in the research design.

(b) The appropriateness of the program

The choice of attitudes as a dependent variable, may not be justified if it can be argued that the program cannot affect attitudes. The research reviewed above has shown that a variety of approaches to structural vocational development programs can result in improvements in attitude scores. This is practical evidence. Theoretically, one has to consider whether the program has the potential to change career attitudes.

Allport (quoted in Fishbein, 1967) offered this definition of an attitude :

> "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations which it is related".

The key words here seem to be 'experience' and 'response'. McGuire (1960) has put forward the idea that attitude change can occur if a person puts forward counter-arguments himself. This implies that a consideration of the ideas comprising attitudes may lead to change in attitude. Staats (1967) has put forward the idea that attitudes can be conditioned. Peer group influence may be an important factor in this case. Open discussion in a classroom, where differing ideas are considered, may thus be influential in changing attitudes. Katz (1960) considered that attitude change

involved learning and that there have to be problems to be dealt with as part of the learning process. This implies that structured application of the ideas put forward in the program may facilitate a process of attitude development or change.

From these ideas, these seems to be a basis for regarding the program as structuring certain experiences which are theoretically related to producing a change in attitude.

(c) The impact of a limited program

The available research indicates that limited programs can have a surprising degree of impact. There are natural limits to the effects of limited programs though and this fact should be kept in mind when structuring the objectives of such programs.

(d) Relative insensitivity of instruments

Super is pessimistic about the ability of available instruments to detect change. His pessimism seems to be mainly directed to his own Career Development Inventory, which, as he points out, has a large standard deviation at any particular grade. A significant change in score on this instrument for example, would be equivalent to a development of two years. Perhaps the main point here is that the outcome of any program has to be considered from many viewpoints in order to fully appreciate the significance of the results, whatever they are.

3.6 Summary

This chapter has dealt with a literature survey of research, and theory, and general points concerned with research into the development of vocational maturity. Issues such as the operationalising of definitions, the suitability of available instruments and research designs were considered and various conclusions, bearing on the present research, were drawn.

CHAPTER FOUR

Aims

Hypotheses

Design

Subjects

Apparatus and scoring procedures

Procedure

Details about the teachers

From the conclusions of the research reviewed in the previous chapter, and practical and theoretical considerations, the following aims and hypotheses have been derived.

AIMS

The overall aim of the research is to develop a career educational program which can be used in schools. Such a program should be of practical benefit to both teachers and pupils. The program should provide pupils with the conceptual tools necessary to deal with their career choices in a mature fashion.

This aim has been defined as developing the vocational maturity of pupils, which was specified as the development of a planning orientation to career choice, and the development of an awareness of the importance of personal and occupational factors associated with career choice.

Dependent variable

The definition has been operationalised by the decision to use the Attitude Scale of the Career Maturity Inventory (Crites, 1973), as the primary measuring instrument. Vocational attitudes thus become a dependent variable.

HYPOTHESES

1. Pupils will develop significantly in their levels of vocational maturity as a result of being taught a program of career education.

2. Pupils will develop significantly greater certainty about their career choices as a result of being taught a program of career education.

3. Intelligence will be significantly related to vocational maturity.

3a. Intelligence will be significantly related to a change in vocational maturity, following participation in a program of career education.

4. Certain personality variables, associated with the concept of personality adjustment, will be significantly related to vocational maturity.

4a. Certain personality variables, associated with the concept of personality adjustment, will be significantly related to change in vocational maturity following participation in a program of career education.

DESIGN OF THE EXPERIMENT

Design Considerations

The design attempts to provide controls for the following factors :

(1) The effect of time related variables.

(2) The effect of the teachers' ability.

(3) The effect of the subjects' age.

(4) The effect of the subjects' intelligence.

(5) The effect of the subjects' personality.

(6) The effect of the subjects' socio-economic status.

The primary effect to be measured is the hypothesized attitude change resulting from the program. Such change, if found, may be the result of the passage of time. Therefore control classes, matched to the experimental classes are utilised which are not taught the program during the experimental period.

If no change is found, this may be a result of the teacher's lack of ability. This is a particularly difficult area to deal with. Teachers cannot be chosen for their ability as this would bias the results. Two alternatives are possible. Either the teachers who participate in the program are evaluated on their ability or a number of representative teachers teach the program to matched classes and differences in outcome, if found, may then be ascribed to teacher var-

iation. Both alternatives are not entirely satisfactory. In the former case, evaluation of teacher's ability has to be done by taking into consideration the teacher's experience, his standing in the school, the results he obtains from his classes each year and so on. A common method of rating the teacher's performance in the classroom is unsuitable as this would be disruptive to the classes.

In the latter case, broadening the scope of the experiment by including a number of teachers makes control more difficult as it becomes difficult to match the classes. Further, this depends on the co-operation of a number of schools, which may not be forthcoming. In addition, this procedure will confuse the testing of the program with the testing of teaching style.

The subjects' age may be influential in that the program may be easier to understand for an older age group or may be too simple for older groups. A range of two or three standards should therefore be included in the design.

The subjects' intelligence will almost certainly influence their initial attitude scores. Whether their intelligence will subsequently influence the benefit they derive from the program remains to be seen. Where more than one experimental class in the same standard is used, these classes should be matched in terms of intelligence, or a means of statistically controlling for intelligence variation must be provided.

There are a number of experimental reports, discussed elsewhere in the text, which suggest that personality variables are related to factors like career certainty and career maturity. Since the experiment attempts to influence attitudes, some measure of personality should be provided to assess the influence of personality on career maturity and attitude maturation.

Socio-economic status has not been linked to career attitudes (Crites, 1973, p.'s 17, 18). It is likely though that basic values, such as the need for career planning, may be influenced by social status (or class). Such values may further bias pupils in their acceptance of career education and related concepts. Socio-economic status measures should therefore be included, both to provide basic identifying data and as a source of post-experimentation investigation.

The design used for the experiment

The design used has been, in part, dictated by the practical limitations imposed on the experiment. Nine large schools in the Cape Peninsula were contacted but, for various reasons, all but two were unable to be of assistance. In each of the co-operating schools again, internal school arrangements influenced the choice of subjects and design used. A third school was able to offer assistance in that some of the classes were used to provide additional norms for the Attitude Scale.

SUBJECTS

Group One

Group 1 subjects were drawn from the four Std. 10 classes of School One. The summarised data presented in Table I below* is based on the data presented in Appendix 1 . Complete sets of data could not be obtained for every pupil in the classes, due to absenteeism when measurements were taken. Those subjects who did not complete either measurement on the Attitude Scale have been excluded from the research.

Group Two

Group 2 subjects were drawn from two Std. 9 classes at School Two. The summarised data presented in Table II below* is based on the data presented in Appendix 2 . As with Group 1, complete sets of data could not be obtained for every subject. Subjects who did not complete either measurement on the Attitude scales have been excluded.

Group Three

Group 3 subjects were drawn from one Std. 10 class, E4, and one Std. 9 class, D5, from School Three. These subjects served to provide additional norms for the Attitude scale . Summarised data, based on Appendix 3, is presented in Table III below.*

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* In Chapter Five.

SCHOOL ONE : "An established boys' school in the Cape Peninsula"

In this school, the four Std. 10 classes participated in the experiment. Classes E1 and E2 formed the experimental subgroup and classes E3 and E4 formed the control subgroup. The experimental classes were taught by the guidance teacher and the control classes by the Acting Head Master. During the experimental period, the control classes did not receive any vocational guidance in the classroom but class members were free to consult the guidance teacher individually if they wished. The classes were all matched for socio-economic status by virtue of the filtering process of the school, which tends to draw pupils from the middle and upper middle social class brackets. Subjects were not matched for intelligence, or age, as the class composition could not be controlled. Personality was assessed by testing, control for personality variation thus being done post experimentally.

SCHOOL TWO : "A modern co-educational school in the Cape""

Two Std. 9 classes from this school participated in the research. Class 9c being the experimental class and 9d being the control class. Both classes were taught by the guidance teacher, who taught his own program of vocational guidance to 9d. Thus the design used here differs from that of School One in two important aspects. The experimental and control class are taught by the same teacher, and the control class receives vocational guidance during the experimental period.

Varying teaching styles with different classes may affect the impact of the program on the pupils. Therefore the teachers should use similar styles and techniques with all the experimental classes. The teacher in this case was advised to use as similar an approach as possible with each class, although no check on this was provided. Allowance has to be made for a normal variation in style.

As the content of the experimental program is similar to the teacher's program, there should be no cross-influence of the one on the other.

The fact that the control class receives career guidance during the experimental program is useful in that this provides a means of comparing the experimental program outcome to that of another program, which is not formally organised or written as a complete 'package'.

Subjects were not matched for intelligence, or age, as no control over the class composition was possible.

SCHOOL THREE : An Established Boys' School in the Cape.

One Std. 9 and one Std. 10 class was drawn from this school, for the purpose of providing additional norms on the Attitude Scale (described further on). They received their normal guidance classes during the experimental period.

APPARATUS

1. The Career Maturity Inventory

The Career Maturity Inventory (hereafter referred to as the C.M.I.), is a two part instrument developed by Crites (1965, 1971, 1973). The sections are the Attitude Scale and the Competence test. Although only the Attitude Scale has been used in the research, the Competence test will also be discussed as its rationale is of theoretical significance.

1a. Background to the Attitude Scale

The C.M.I. as a whole draws on the concept of occupational choice as a process which progresses through distinguishable periods, stemming from the work of Ginsberg and his colleagues (1951). Super (1955) conceptualized the dimension of vocational maturity as part of this developmental process. Crites (1965) later developed a research model for exploring vocational development, based on the earlier ideas of Super. The C.M.I. incorporates two of the dimensions of the model developed by Crites.

According to Crites, "the Attitude Scale elicits the feelings, the subjective reactions, the dispositions that the individual has toward making a career choice and entering the world of work' (Crites, 1973, p.3).

The scale surveys -

(a) involvement in the career choice process;

(b) orientation toward work;

(c) independence in decision making;

(d) preference for career choice factors;

(e) conceptions of the career choice process.

It consists of fifty statements with a True-False answer format. The reading level has been set at the twelve year old level. In practice, the typical administration time is ten minutes.

The original item pool was drawn from statements made by clients in vocational counseling. Various item and answer formats were investigated and the final item and formal selection was based on results obtained from over 2 800 pupils representing grades five to twelve and both sexes. The items selected were those which exhibited a monotonic relationship to grade. A monotonic relationship was also found with age, but was weaker in this case. The selection is in accordance with the principle of vocational maturity being defined by an individual's behaviour in relation to that of his peers. (Super, 1955).

Reliability

Internal consistency estimates, using the K-R 20 formula, were calculated on the standardization data. The average coefficient was 0,74, which is regarded as satisfactory for a scale of this nature. Test-retest reliability coefficient

was 0,71 (one year). This coefficient is also satisfactory, considering the maturational nature of the items (Crites, 1971).

Validity

Crites (1971) cites several studies related to the validity of the scale. Hollender (1964), found relationships between the scale and consistency and realism of career choice. Carek (1965), found a relationship between decisiveness in career choice and the scale. Cooter (1966), found an r of 0,38 ($p < 0,01$) between the scale, and the 'Readiness for Vocational Planning' scales, a different measure of career maturity. These results are taken by Crites as evidence of criterion-related validity.

Various other factors and their relationship to the scale have been studied. Thus Carek (1965) investigated response bias and Cover (1968) investigated socio-economic status. These studies produced negative results. Cover, and Tamminen and Miller (1968) found that verbal intelligence is related to the mature expression of attitudes. Heilbrum (1960) and Bartlett (1968) found relationships between personality variables (measured by the Adjective Check List) and the Scale. These personality variables could be generally described as related to maturity and personal adjustment.

In brief, the Attitude Scale has been satisfactorily developed and researched. It is firmly based on viable ideas of

career development, it has both empirical and rational validity and it currently provides the most convenient measure of a dimension of career maturity. A copy of the Attitude Scale and of the scoring key is provided as Appendix No. 4.

1b. The Competence Test

It is apparent that the process of occupational choice at any point in time must reflect the attitudes held in relation to career choice and also the available occupational knowledge, the available insight or self-knowledge and the decision making and planning ability of the individual. The Competence test provides a measure of the cognitive variables involved in career choice. Unfortunately, for a number of reasons, this test was unsuitable for use. These reasons are, briefly :

1) Inadequate reliability and validity data.
2) Excessive time load on Ss due to long administrative time (over two hours).
3) Culture bound content.

2. The New South African Group Test

The I.Q. scores used in this research were obtained with the New South African Group Test. (National Bureau of Educational Research, 1965).

The N.S.A.G.T. is a multiple choice answer format intelligence test designed for group administration. The test consists of

three non-verbal and three verbal subtests. The 'verbal' subtests use words (instead of numbers or figures) as the basic test elements; a verbal response is not required.

The Senior Series of the test was standardized on 2 052 English speaking boys and girls distributed through the four provinces. Forms S and T of the Senior series of the N.S.A.G.T. were issued in 1965 (revisions of earlier forms).

The split-half test reliability (K-R 21 formula) is high,being 0,90 on the total test for English speaking pupils. Test stability and validity is not reported in the 1965 manual. Standard error of measurement is 4,8 for an English speaking sample.

It is interesting to note that van Vuuren (1975) in his research found an average I.Q. of 113 on the N.S.A.G.T. ($N > 1400$). It may be that the N.S.A.G.T. does overestimate I.Q. Nonetheless, for the present research, this is of little consequence as the relative I.Q.'s of the Ss with respect to each other are more important than their standing in relation to a national norm.

3. The High School Personality Questionnaire

A comprehensive, preferably standardised personality test was required for the research.

The High School Personality Questionnaire (H.S.P.Q.) was selected primarily on the basis of its standardization and comprehensiveness. There are two drawbacks about the H.S.P.Q.

- the length of time needed for administration and its susceptibility to faking.

The H.S.P.Q. is a well researched test, based on extensive factor analytic research (Cattell and Cattell, 1969). It is in worldwide use and provides a profile of fourteen traits of normal (as opposed to clinical) personality variation. The South African version consists of two parallel forms and the administration of both forms is recommended for maximum validity. Only one form was administered in the present case, due to time limitations. (The suggested time allowance for administration is 80 minutes per form).

Reliability

The test-retest reliability (one-week) on form A for a sample of boys, aged 14 - 18 years, ranges from 0,61 to 0,75, depending on the test factor. Reliabilities for Form B are similar (Human Sciences Research Council - Manual for H.S.P.Q., 1974).

Validity

The manual lists only validity coefficients based on equivalence coefficients. These range from 0,63 to 0,84, depending on the test factor.

Susceptibility to Faking

It is apparent from reading the American handbook (Cattell and Cattell, 1969) that there is no satisfactory way to

eliminate or control for the effect of faking on the H.S.P.Q. In the present use of the H.S.P.Q. though, faking should not be a serious problem, as the subjects are under no 'press' to present themselves in a desirable light. Due to the length of the test, it is possible that some subjects may resort to patterned or random marking procedures, in order to complete the test as quickly as possible. Patterned marking is easily detected by the eye while random marking will usually produce lower than average correlations between some test factors (Cattell and Cattell, p.15).

Administration Time

Most test manuals, when dealing with lengthy tests, give little consideration to the cooperativeness of the subject. This can be a particular problem in the group situation. In the present case, the subjects had no personal involvement in their test results and were thus essentially uninterested. A sincere request for cooperation should be made of subjects in such a case. Cattell and Cattell (1969) quite rightly argue that the lengthy administration time is compensated for by the wealth of information obtained. In the present instance, when the investigation of personality variables involved in the outcome of the experiment is post-experimental, it was decided to gather as much personality data as possible, rather than to limit the personality assessment (time-wise) and possibly not collect important data.

4. The Personal Questionnaire

The Personal Questionnaire was designed to furnish personal identifying data and data on job certainty.

Section one requires the subject to provide his name, age, family breadwinner's occupation and educational level and his parents occupational aspiration for him.

Section two is based on the Keele Occupational Crystallization Self-Appraisal Form (Daws, 1975), which was designed to assist counselors in establishing the level of job certainty of their clients. The questions are graded in order from certainty to uncertainty about future job.

The Personal Questionnaire is presented as Appendix No. 5.

5. The Program Benefit Assessment Questionnaire

The Program Benefit Assessment Questionnaire was designed to allow subjects to indicate their reactions to the program and how it was taught. Four areas were covered :

1) Assessment of career choice knowledge gained from the program.
2) Assessment of which part of the program was the most valuable to them.
3) Assessment of the teaching methods and style.
4) Assessment of change in career plans as a result of the program.

In addition, subjects were invited to write down their comments on the program.

The Program Benefit Questionnaire is presented as Appendix No. 6.

SCORING PROCEDURES FOR TESTS AND QUESTIONNAIRES

1. Attitude Scale - This was scored as per manual instruction. The key is presented in Appendix 3

2. H.S.P.Q. - This was scored according to the manual directions.

3. Personal questionnaire

   (a) Parental aspiration was scored according to the following key :

   1 = a firm aspiration expressed by both parents, e.g. "My parents want me to be a doctor".

   2 = a preference expressed by the parents but allowance made for change, e.g. "My parents would like me to be an engineer but don't mind if I do something else
   or, "My parents have suggested that I become a lawyer"
   or, a firm aspiration by one parent and a preference by the other, e.g. "My father wants me to be a doctor but my mother would like me to go into teaching".

   3 = no preferences indicated, e.g. "My parents don't mind what I do"
   or no response given.

(b) Socio-economic status - The occupational categories of Hollingshead and Redlick, taken from Robinson et al. (1969) were used to assign socio-economic status to the subjects. Judgements were based on both the educational level and the occupation of the breadwinner.

The following categories were used :

1. Executives and proprietors of large firms (major professionals).
2. Managers and proprietors of large firms (lesser professionals).
3. Administrative personnel of large firms; owners of small, independent businesses; semi-professionals.
4. Owners of smaller businesses; clerical and sales technicians.
5. Skilled workers.
6. Semi-skilled workers.
7. Unskilled workers.

A few examples taken from the data will illustrate the score assignment :

Pharmacist, hairdresser (own business), personnel manager, credit controller, business manager (without degree) = 3.

Business manager (with degree), doctor = 2.

Traffic policeman, municipal employee, travel agent = 4.

(c) Job Certainty

Scores ranged from 1 to 10 on the Job Certainty questionnaire, depending on the respondents choice

of response level. Thus a tick next to questions 1 or 2 or 3 would receive a score of 1 or 2 or 3. Low scores represent a high level of certainty and high scores represent low certainty.

Analysis of Results

Results were analysed by means of 'Psychostats' statistical programs on a Hewlett-Packord HP2114B computer and by means of an ordinary desk calculator.

PROCEDURE

Teachers were canvassed by telephone and interviews were held with those who expressed interest. The purpose of the experiment and the nature of the educational program was carefully explained.

The initial measurements were done by the teachers, who requested their pupils to answer the Attitude Scale and the Personal questionnaire, excepting for the classes in Group Three, who only answered the Attitude Scale. The teachers gave their pupils a brief explanation in order to gain their cooperation. It was explained to the pupils that the questionnaires were being used for research in career guidance, the object being to see what they would gain from a program of career guidance that would be taught to them. Pupils who were interested to know more about the research were free to speak to the researcher after the conclusion of the program. (The explanation was not given to Group Three subjects who were, of course, not exposed to the program).

With Group One, an assistant and myself administered all the material to the classes excepting the Attitude Scale and Personal questionnaire with classes E3 and E4 as these instruments had been administered to them in the previous week by Mr. Blue, the guidance teacher.

With Group Two, all instruments were administered by Mr. Browne, who satisfied me that he knew the correct procedure.

With Group Three, the Attitude scales were administered by Mr. Kaplinsky, the guidance teacher.

The program took seven school periods to teach but the actual duration was longer than this, due to a mid-term school vacation and other school activities. So, with group Two, the initial testing was completed by the 30th July, 1976, and the final testing was completed on the 20th October, a week after the conclusion of the program.

Group Two started the program on 13th September, 1976, and the final testing was completed by 10th November. Group Three completed the first questionnaire during the week ending 6th August and the second questionnaire on the 20th October.

The I.Q. scores of each pupil were obtained from their cumulative record cards.

On conclusion of the program, the Attitude Scale, Section 2 of the Personal questionnaire, the Program Benefit Assessment questionnaire and the High School Personality questionnaire were given to all classes in Groups One and Two. Group Three classes answered the Attitude questionnaire only.

TEACHERS

Group One (Teachers names are fictitious)

Mr T. Blue is the teacher-psychologist/guidance teacher at School One. He is a senior grade teacher with fourteen years' teaching experience. He holds a B.A. degree and S.T.D. from the University of Cape Town and B.Ed. degree in Child Psychology and Counseling from Edinburgh University. He has been officially employed as a teacher-psychologist since 1975 but has devoted much of his career to counseling and guidance.

Mr. Blue impressed me as an enthusiastic and dedicated teacher who establishes a good rapport with his classes. He was keen to teach the program as he felt he would learn much therefrom.

Mr. D. Johnson, the Vice-Head of School One, is a senior teacher with over twenty years of teaching experience. He specialises in English. Although he has often been called upon to offer guidance of a general, non-vocational nature, he does not have a background or specific training in psychology or vocational guidance.

Group Two (Teacher's name is fictitious)

Mr. A. Browne is the teacher-psychologist/guidance teacher at School Two, where he has spent five out of his eight years in teaching. He is a senior grade teacher, holding a B.A., B.Sc. degree and S.T.D. from the University of Cape Town. He has a B.Ed. degree from Stellenbosch University.

The vocational guidance taught by the teacher of Group Two

Mr. Browne dealt with matters such as interests and abilities, with class 9d, during the experimental period. He described the essential difference between the experimental program and his own as being a matter of breadth vs. depth. Thus he felt that the experimental program covered a wider range of topics in the same time as his own program, and did not develop as much depth as his own.

Group Three

The teacher of Group 3 was Mr. S. Kaplinsky, the teacher psychologist at School Three. Mr. Kaplinsky has a B.A. (Hons.) degree in Psychology and an S.T.D., both obtained at the University of Cape Town. He is presently graded as an Assistant Teacher, with a total of seven and a half years' teaching experience, three and a half of these in State schools. Mr. Kaplinsky has previously described the kind of careers program he runs with his classes (Kaplinsky, 1975). During the experimental period he discussed with his classes such issues as job satisfaction, factors related to success in work, and administered interest questionnaires.

CHAPTER FIVE

Overall data

Matching of classes

Testing the hypotheses

Explaining results of Group One

Responses of Group Two on the Program Benefit Questionnaire

Correlational analyses

Personality analysis of Group Two

Subjects' comments

Teachers' evaluation

INTRODUCTION

The results are presented in the form of Tables with an accompanying description of the tests used for statistical analysis and a rationale for this, where applicable. Some results are presented by means of a discussion as they are not suited to tabular presentation. The statistical tables consulted come from Ferguson (1971) and Edwards (1968).

5.1 Overall Data

Tables I, II and III below present summary data of the main variables of the three groups of subjects used in the research.

TABLE I

Summary Data for Group One

		E_1	E_2	E_3	E_4
Age	N	25	24	26	24
	$\bar{X}$	16,96	17,25	17,23	17,75
	S.D.	0,454	0,793	0,514	0,944
I.Q.	N	23	22	24	23
	$\bar{X}$	121,348	116,773	110,042	109,348
	S.D.	11,048	12,546	10,972	9,786
Attitude Pre-Test Score	N	25	24	26	24
	$\bar{X}$	39,880	38,333	36,461	36,625
	S.D.	3,586	3,522	4,623	5,314
Attitude Post-Test Score	N	25	24	26	24
	$\bar{X}$	41,560	38,50	35,884	36,166
	S.D.	3,775	4,222	5,248	6,538
Socio-Economic Status	N	25	24	26	24
	$\bar{X}$	2,76	2,708	2,884	3,083
	S.D.	0,830	0,858	0,588	0,829

TABLE II

Summary Data for Group Two

		9c	9d	
Age	N	27	26	t = 0,810
	$\bar{X}$	16,407	16,269	
	S.D.	0,572	0,666	
I.Q.	N	27	26	t = 1,223
	$\bar{X}$	113,889	109,769	
	S.D.	13,658	10,606	
Attitude Pre-Test Score	N	27	26	
	$\bar{X}$	36,814	35,615	
	S.D.	4,270	4,318	
Attitude Post-Test Score	N	27	26	
	$\bar{X}$	36,259	35,384	
	S.D.	5,375	5,044	
Socio-Economic Status	N	24	26	t = 2,510
	$\bar{X}$	3,00	3,692	
	S.D.	0,978	0,970	

TABLE III

Summary Data for Group Three

		E_4	D_5
Age	N	23	24
	$\bar{X}$	17,695	16,25
	S.D.	0,702	0,531
I.Q.	N	23	24
	$\bar{X}$	112,174	112,917
	S.D.	10,645	10,656
Pre-Test Attitude Score	N	23	24
	$\bar{X}$	38,043	35,666
	S.D.	4,161	4,869
Post-Test Attitude Score	N	23	24
	$\bar{X}$	37,869	36,087
	S.D.	4,625	5,249

5.2 Matching of Experimental and Control Classes

The experimental and control classes were compared with each other on the variables of age, intelligence and socio-economic status. The Tables below list the data and test results.

5.2.1 Group One

a) Age

Table IV presents the results of an ANOVA test on the mean ages of the four classes of Group One. (See Table I for

means and standard deviations).

TABLE IV

ANOVA Summary of Mean Age, Group One

ANOVA SUMMARY				
SOURCE	SS	DF	MS	F RATIO
A	7.92969	3	2.64323	5.39154
ERROR	46.5742	95	.49Ø255	
SUGGESTED DF FOR CONSERVATIVE TEST ARE 2 , 72				

Tabled F at 3 and 80 degrees of freedom is 2,72 (p = 0,05). The computed F is therefore significant. A Scheffe test indicated that the mean ages between classes E_3 and E_4 were significantly different

b) Intelligence

Table V below lists the ANOVA summary data on the mean I.Q.'s of the four classes of Group One. (See Also Table for means and standard deviations).

TABLE V

ANOVA Summary of Mean I.Q., Group One

ANOVA SUMMARY				
SOURCE	SS	DF	MS	F RATIO
A	2276.5	3	758.833	6.1348
ERROR	1Ø885	88	123.693	
SUGGESTED DF FOR CONSERVATIVE TEST ARE 2, 85				

Tabled F at 3 and 80 degrees of freedom is 2,72 (p = 0,05). The computed F is therefore significant. A Scheffe test in-

dicated that the experimental sub group (i.e. E_1 and E_2) and the control sub group (E_3 and E_4) were significantly different from each other. No significant differences existed within these sub groups.

c) Socio-Economic Status

Table VI below lists the ANOVA summary data for the four classes of Group One. (See also Table for means and standard deviations)

TABLE VI

ANOVA Summary of Mean Socio-Economic Status, Group One

F MAX = 2.13ØØ3 DF = 4 , 23

ANOVA SUMMARY

SOURCE	SS	DF	MS	F RATIO
A	2.Ø1465	3	.671549	1.Ø9985
ERROR	58.ØØ55	95	.61Ø584	

SUGGESTED DF FOR CONSERVATIVE TEST ARE 2 , 89

Tabled F at 3 and 80 degrees of freedom is 2,72 (p = 0,05). The computed F is therefore not significant.

5.2.2 Group Two

a) Age

Table II lists the t test summary data for the two classes of Group Two.

Tabled t at d.f. = 40 is 2,021 (p = 0,05). The computed t is therefore not significant.

b) Intelligence

Table II lists the t test summary data for 9c and 9d.

Tabled t at d.f. = 40 is 2,021 (p = 0,05). The computed t is therefore not significant.

c) Socio-Economic Status

Table II lists the t test summary data for 9c and 9d.

Tabled t at d.f. = 40 is 2,021 (p = 0,05). The computed t is therefore significant.

5.3 Testing the Hypotheses

Hypothesis 1 : Pupils will develop significantly in their level of vocational maturity as a result of being taught a program of career education.

This hypothesis was tested separately for Group One and Group Two. An appropriate method of analysis is a "gains" analysis. Edwards (1968) has pointed out that where the regression line slope is not equal to 1,00 (as in the present case) an analysis of variance as the error estimate with the latter test is larger. In the analysis of covariance, Pre-test Attitude Scale scores are the covariater and the Post-test scores are the variates.

Table VII below presents the computer printout summarising the test data, which is derived from the Attitude Scale scores of all the classes in Group One, presented in Appendix I. Note that the "overall" Y Mean in the printout is incorrect.

This is a computer error but does not affect the ANACOVA analysis.

TABLE VII

ANACOVA Summary for Pre-Post Test Attitude Scores Differences : Group One

OVERALL DATA
R = .7Ø2471 SLOPE = .774751 X MEAN = 37.9394 Y MEAN = 1445.54

ADJUSTED TREATMENT MEANS
4Ø.Ø565 (E_1) 37.8Ø74 (E_2) 37.Ø296 (E_3) 37.185 (E_4)

SOURCE	SS	DF	MS	F RATIO
ANOVA SUMMARY - NO ADJUSTMENT				
A	519.812	3	173.271	6.79Ø29
ERROR	2424.16	95	25.5174	
ANACOVA SUMMARY - WITH ADJUSTMENT				
A	134.3Ø7	3	44.7691	3.1Ø138
ERROR	1356.91	94	14.4352	

CHECK ON HOMOGENEITY
F = 8.24215E-Ø2 DF = 3 , 91

MS (EFFECTIVE ERROR) = 15.ØØ79
(FOR MULTIPLE COMPARISONS)

The tabled F ratio at 3 and 80 degrees of freedom is 2,72 at p = 0,05. The computed F of 3,101 is therefore significant.

A Scheffe test for the means of E_1 against E_3 and E_4 respectively produced significant F's of 2,593 and 2,242 (Tabled F = 2,18 at p = 0,10). The mean of E_2 was not significantly different from the means of the control classes.

Group Two

Table VIII below presents the computer printout summarising the ANACOVA test data of the subjects in Group Two. Note that the "overall" Y mean in the printout is incorrect. This does not affect the ANACOVA test. Test data is derived from the raw data in Appendix II.

TABLE VIII

ANACOVA Summary of Pre-Post Test Attitude Scores Differences : Group Two

OVERALL DATA
R = .53Ø33 SLOPE = .638299 X MEAN = 36.2264 Y MEAN = 1283.8

ADJUSTED TREATMENT MEANS
35.8837 (9c) 35.7746 (9d)

SOURCE	SS	DF	MS	F RATIO
ANOVA SUMMARY - NO ADJUSTMENT				
A	1Ø.125	1	1Ø.125	.3722Ø4
ERROR	1387.34	51	27.2Ø28	
ANACOVA SUMMARY - WITH ADJUSTMENT				
A	.155762	1	.155762	7.75494E-Ø3
ERROR	1ØØ4.27	5O	2Ø.Ø855	

CHECK ON HOMOGENEITY
F = 3.3591ØE-Ø2 DF = 1 , 49

MS (EFFECTIVE ERROR) = 2Ø.4927
(FOR MULTIPLE COMPARISONS)

The computed F of 0,007549 is below the tabled significant F of 4,03 (p = 0,05) and is therefore not significant.

Hypothesis 2. Pupils will develop significantly greater certainty about their career choices as a result of being taught a program of career education.

In order to analyse this hypothesis, a signed numerical difference was calculated between Pre-test and Post-test 'Job Certainty' scores for all classes in Groups One and Two (raw data in Appendices I and II). A frequency count of the positive and negative differences was made. The frequencies are presented in Tables IX and X below.

TABLE IX

Frequency Responses of Pre-post Test Job Certainty Score Differences : Group One

Class	No. of Changes		χ^2
	+	-	
E_1	11	2	4,92
E_2	10	2	4,08
E_3	5	5	0,09
E_4	7	8	0,00

TABLE X

Frequency Responses of Pre-post Test Job Certainty Score Differences : Group Two

Class	No. of Changes		χ^2
	+	-	
9c	6	7	0,00
9d	6	5	0,00

The analysis was done by ascertaining whether the Pre-post test frequencies were significantly different or not. The Chi-square class of tests are generally applicable in this case. The particular test used was a sign test for correlated samples (Ferguson, 1971, Ch.22). The null hypothesis is that the median difference between the pairs of scores is zero.

The formula used for the calculation is

$$Z = \frac{|D| - 1}{\sqrt{N}}$$

Where N = number of signed observations

D = difference between the number of positive and negative signs

$Z^2 = \chi^2$, when d.f. = 1,0, as in the present case.

(This formula contains a continuity correction).

The value of Chi-squared obtained for each class is presented in Tables IX and X. In each case, tabled Chi-squared is 3,84 at p = 0,05 (d.f. = 1). The Pre-post test differences in the cases of the experimental classes E_1 and E_2 of Group One are therefore significant.

Hypothesis 3 : Intelligence will be significantly related to vocational maturity.

This hypothesis was tested separately for the subjects in Group One and the Standard 10 class of Group Three, and for the subjects of Group Two and the Standard 9 class of Group Three. This division was made as it has been shown that the

scores on the Attitude Scale are related to school grade.

The Pre-test Attitude Scale scores and I.Q.'s of the subjects were correlated, for each standard. Table XI below presents the relevant data.

TABLE XI

Correlations of Intelligence and Pre-test Attitude Scores for Groups One, Two and Three

Standard	N	r	I.Q.: Mean and S.D.	Attitude : Mean and S.D.
10	115	0,110	113,878 11,749	37,930 4,459
9	77	0,170	112,195 11,764	36,051 4,457

Neither of the two r's obtained are significant. In the case of the Standard 10 Group, critical r at p = 0,05 is 0,195 at N = 100 and for the Standard 9 Group, critical r at p = 0,05 is 0,232 at N = 70.

Hypothesis 3a : Intelligence will be significantly related to a change in vocational maturity, following participation in a program of career education

This hypothesis was tested separately for Group One and Group Two. The data for the experimental classes of Group One were combined for this hypothesis.

A signed change in Pre-post test attitude scores was calculated and the subjects were split into two groups : those who showed an increase in their attitude scores and those who showed a decrease, or no change, in their scores. The I.Q. scores of the subjects were then compared by means of a t test.

Tables XII and XIII present the relevant data .

TABLE XII

Mean I.Q.'s of Subjects who Show a Post-test Increase and Decrease in Attitude Scores : Group One

Group	Mean I.Q.	Standard Deviation	t value
Increase in Attitude	120,636 (N = 22)	12,849	0,703 (not significant)
Decrease in Attitude	118,091 (N = 22)	11,083	

TABLE XIII

Mean I.Q.'s of Subjects who Show a Post-test Increase and Decrease in Attitude Scores : Group Two

Group	Mean I.Q.	Standard Deviation	t value
Increase in Attitude	116,385 (N = 13)	14,315	0,911 (not significant)
Decrease in Attitude	111,571 (N = 14)	13,113	

The calculated t's for both Group One and Group Two were not significant (Tabled t's, at p = 0,05 are respectively 2,021, d.f. = 40 and 2,060, d.f. = 25).

Hypothesis 4 : Certain personality variables, associated with the concept of personality adjustment will be significantly related to vocational maturity.

This hypothesis was tested separately for Group One and Group Two. In order to establish what the relationship between vocational maturity and personality is, if any, all the subjects in Group One and Group Two respectively were divided into those who scored an above average Pre-test attitude score, and a below average Pre-test score. Mean sten scores on each of the H.S.P.Q. factors for each group were then calculated and compared by means of a t test. Note that although both forms of the H.S.P.Q. were used, with different subjects, conversion of raw scores on these forms to sten scores, makes the results obtained on the different forms equivalent.

For Group One, a mean Pre-test attitude score was calculated by including the data from the Standard 10 class of Group Three. For Group Two, a mean score was calculated by indicating the data from the Standard 9 class of Group Three. These means are presented in Table XI. Subjects whose Pre-test attitude scores equalled the rounded off mean were left out of this analysis. They amounted to a very small proportion of the total number of subjects in each group and thus could be safely excluded.

Group One :

Table XIV below presents the relevant data for Group One.

TABLE XIV

H.S.P.Q. Factor Means : Subjects with Above Average Pre-test Attitude Score vs Subjects with Below Average Pre-test Attitude Score : Group One

Factor	Group : Above Mean $\bar{X}$ (N = 45)	Below Mean $\bar{X}$ (N = 39)	Standard Deviation Above	Below	t
A	5,977	5,794	2,105	1,844	0,415
C	6,422	5,615	1,698	1,726	2,154*
D	5,733	5,769	1,875	1,884	0,087
E	6,400	6,717	2,060	1,848	0,739
F	6,022	6,410	2,241	1,787	0,867
G	5,444	4,512	1,937	1,819	2,261*
H	6,311	5,692	1,880	1,823	1,525
I	5,611	6,358	2,142	2,108	0,661
J	5,244	5,717	2,024	2,038	1,065
O	4,577	4,769	1,924	1,546	0,497
Q_2	5,822	5,256	1,735	1,481	1,593
Q_3	6,244	4,897	2,090	2,049	2,972**
Q_4	5,622	6,358	1,735	1,842	1,885

(* = significant at p = 0,05)

(** = significant at p = 0,01)

(Means are expressed in Stens)

Group Two :

Table XV below presents the relevant data for Group Two.

TABLE XV

H.S.P.Q. Factor Means : Subjects with Above Average Pre-test Attitude Score vs Subjects with Below Average Pre-test Attitude Score : Group Two

Factor	Group : Above Mean $\bar{X}$ (N = 22)	Below Mean $\bar{X}$ (N = 20)	Standard Deviation Above	Below	t
A	5,500	4,850	2,064	2,109	1,008
C	5,909	5,200	1,630	1,673	1,390
D	5,818	5,800	1,735	1,673	0,034
E	7,863	6,850	1,037	1,954	2,127 *
F	6,362	6,200	2,172	1,472	0,282
G	5,409	5,000	1,333	1,521	0,928
H	5,727	5,200	1,830	1,196	1,092
I	4,500	5,600	1,845	1,465	2,124 *
J	5,318	6,200	2,146	1,794	1,436
O	4,727	5,650	1,579	1,694	1,826
Q_2	5,318	6,350	1,585	1,980	1,871
Q_3	4,818	4,950	1,867	1,848	0,229
Q_4	5,636	6,700	2,012	1,559	1,900

(* = significant at p = 0,05)
(Means are expressed in Stens)

Tabled t at 80 degrees of freedom is 1,990 and at 40 degrees of freedom is 2,021 (p = 0,05)

From Table XIV, it can be seen that three factors are significantly different, viz. C, G and Q_3.

From Table XV it can be seen that two factors are significantly different, viz. E and I. Note that Factor B, which has been excluded, is a crude intelligence scale and is not therefore relevant.

Hypothesis 4a : Certain personality variables, associated with the concept of personality adjustment, will be significantly related to change in vocational maturity following participation in a program of career education.

This hypothesis was tested separately for Group One and Group Two. In the case of Group One, the experimental classes were combined. Subjects were grouped according to whether their Post-test attitude scores had increased, decreased or showed no change, over their Pre-test scores. Mean H.S.P.Q. factor scores were then calculated for these groups and compared by means of a t test. Control class data was not used in this analysis.

Group One :

Table XVI below presents the relevant data.

TABLE XVI

H.S.P.Q. Factor Means : Subjects With a Post-test Increase in Attitude Scores vs Subjects with a Post-test Decrease or No Change in Attitude Score : Group One

Factor	Grouping I = Increase D = Decrease	Mean (Stens)	Standard Deviation	t
A	I (N=25)	6,240	1,877	0,348
	D (N=23)	6,043	2,033	
C	I	6,560	1,227	0,958
	D	6,130	1,841	
D	I	6,000	1,744	0,741
	D	6,347	1,465	
E	I	6,120	1,855	0,520
	D	5,826	2,059	
F	I	5,960	2,091	1,466
	D	6,826	1,992	
G	I	5,160	1,929	1,238
	D	4,434	2,128	
H	I	6,480	2,063	0,145
	D	6,391	2,147	
I	I	5,920	2,448	0,056
	D	5,956	1,941	
J	I	4,44	1,894	1,426
	D	5,260	2,093	
O	I	4,68	1,547	0,0554
	D	4,652	1,921	
Q_2	I	5,28	1,514	0,946
	D	4,869	1,486	
Q_3	I	6,64	1,823	1,015
	D	6,086	1,951	
Q_4	I	5,680	1,819	1,266
	D	6,260	1,286	

Group Two :

Table XVII below presents the relevant data for 9c. Subjects were grouped according to the same criteria as in the case of Group One above, and t tests applied to the H.S.P.Q. factor means.

TABLE XVII

H.S.P.Q. Factor Means : Subjects With a Post-test Increase in Attitude Scores vs Subjects with a Post-test Decrease or No Change in Attitude Score : Group Two

Factor	Grouping I = Increase D = Decrease	Mean (Stens)	Standard Deviation	t
A	I (N=12)	4,250	1,912	1,350
	D (N=9)	5,444	2,127	
C	I	5,416	1,676	0,092
	D	5,333	2,179	
D	I	5,500	2,129	0,080
	D	5,555	1,666	
E	I	7,750	1,544	0,337
	D	7,555	0,881	
F	I	6,153	1,832	0,097
	D	6,000	2,121	
G	I	6,000	1,595	1,431
	D	4,888	1,964	
H	I	5,666	1,154	0,327
	D	5,444	1,943	
I	I	5,342	1,502	0,135
	D	5,222	2,279	
J	I	5,010	1,540	1,108
	D	5,888	2,147	
O	I	5,370	1,167	1,584
	D	4,333	2,179	
Q_2	I	6,083	1,505	0,252
	D	5,888	2,027	
Q_3	I	5,500	1,623	0,984
	D	4,777	1,715	
Q_4	I	6,250	1,422	0,882
	D	5,555	2,185	

5.4 Explaining the Different Results of the Experimental Classes of Group One on Hypothesis 1

Further analyses of classes E_1 and E_2 were undertaken in an attempt to account for the observed difference between these

classes in relation to Hypothesis 2.

5.4.1 The personality profile of the two classes were compared by means of a t test, factor by factor. Table XVIII below lists the relevant data of this analysis.

TABLE XVIII

H.S.P.Q. Factor Means : Scores Obtained By the Experimental Classes of Group One

Factor	Class	Mean (Stens)	Standard Deviation	t value
A	E_1(N=25)	5,880	1,964	0,992
	E_2(N=23)	6,434	1,902	
C	E_1	6,560	1,157	0,958
	E_2	6,130	1,890	
D	E_1	6,080	1,777	0,383
	E_2	6,260	1,452	
E	E_1	6,200	2,101	0,819
	E_2	5,739	1,763	
F	E_1	5,560	1,938	3,093 **
	E_2	7,260	1,863	
G	E_1	5,560	1,827	2,840 **
	E_2	4,000	1,977	
H	E_1	6,200	2,140	0,820
	E_2	6,695	2,032	
I	E_1	5,720	2,150	0,711
	E_2	6,173	2,269	
J	E_1	4,920	1,977	0,307
	E_2	4,739	2,093	
O	E_1	4,880	1,715	0,895
	E_2	4,434	1,727	
Q_2	E_1	5,400	1,581	1,547
	E_2	4,739	1,355	
Q_3	E_1	7,040	1,881	2,713 **
	E_2	5,652	1,640	
Q_4	E_1	5,760	1,588	0,894
	E_2	6,173	1,613	

(** These values are significant at p = 0,01, d.f. = 40)

Tabled t at 45 degrees of freedom is 2,680 (extrapolated) at p = 0,01. Classes E_1 and E_2 therefore differ significantly from each other on factors F, G and Q_3.

5.4.2 The responses of the classes to the Program Benefit Questionnaire were analyzed by means of chi-square tests and inspection.

Table XIX lists the response frequencies of classes E_1 and E_2 on the questions asked in the Program Benefit Questionnaire.

TABLE XIX

Frequency Responses of the Answers Given By The Experimental Classes of Group One on the Program Benefit Questionnaire

Response Category	Question Number							
	1		2		3		4	
	E_1	E_2	E_1	E_2	E_1	E_2	E_1	E_2
a	4	5	1	1	5	3	17	19
b	8	8	6	4	1	4	1	0
c	12	11	6	5	7	14	7	4
d	1	0	6	7	14	7	0	1
e			4	5	2	5		
f			7	8	1	0		

(i) The first question deals with the subjective evaluation of the knowledge gained from the program. An inspection of the frequencies recorded in the table under Question 1 shows very little difference between the two classes. This is borne out by a chi-squared analysis. The data were grouped to form a

2 x 2 table, i.e. response categories a and b, and c and d were combined and subjected to a chi-squared test of independence.

Calculated χ^2 = 0,021 at d.f. = 1.
Tabled χ^2 = 3,84 at d.f. = 1, p = 0,05.

(ii) The second question dealt with the subjects' evaluation of the usefulness of various sections of the program. This question was asked in order to provide data for future development of the program and was not subjected to a statistical analysis.

The combined responses of the classes E_1 and E_2, expressed as percentages for each category are :

a = 3,3
b = 16,7
c = 18,3
d = 21,7
e = 15,0
f = 25,0

(iii) The third question dealt with the evaluation of the way the program was experienced in terms of the teacher's ability in teaching it. A chi-squared test of independence was performed on the data in the table listed under Question 3. In order to raise the proportion of expected frequencies, greater than five, to the suggested level of 80 percent, categories 'b' and 'e' were combined and category 'f' was excluded. In

spite of this action, 25 per cent of the expected frequencies were less than five. Ferguson's (1971) suggestion of applying Yate's correct on to the obtained frequencies of those cells whose expected frequencies are 1 ss than five was adopted as a remedial measure.

Calculated χ^2 = 7,70 at d.f. = 3.

Tabled χ^2 = 7,81 at d.f. = 3, p = 0,05.

It can be seen that the calculated value falls just below significance at the 0,05 level (but is significant at the 0,10 level - tabled ^{2} then equals 6,25).

(iv) Question 4 was asked in order to evaluate the overall impact of the program on career plans. The majority response in both classes indicated that no change in thinking had occurred (E_1 = 68% and E_2 = 79%). A few subjects from each class indicated that they were now more certain about their plans (E_1 = 28% and E_2 = 15%).

5.5 The Responses of Group Two on the Program Benefit Questionnaire

Table XX below lists the responses made by class 9c on the Program Benefit Questionnaire.

TABLE XX

Frequency Responses of the Answers Given By the Experimental Class, 9c, of Group Two on the Program Benefit Questionnaire

Response Category	Question Number							
	1		2		3		4	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
a	19	70,4	10	37,0	2	8,7	24	89
b	7	26,0	2	7,4	3	13,0	2	7,4
c	0	0,0	9	33,3	6	26,1	0	0
d	1	3,7	4	14,8	8	34,8	1	3,6
e			0	0,0	3	13,0		
f			2	7,4	1	4,3		

No statistical analysis was undertaken as the frequencies in the various categories were too small.

The explanation given above in part 5.4.2, concerning the questions of the Program Benefit Questionnaire applies in the present instance.

5.6 Correlational Analyses

The factors of Pre-test attitude score, Socio-economic status, Parental Aspiration and Pre-test Job Certainty were cross correlated separately for Group One and Group Two.

Table XXI below presents the correlation matrix for Group One.

TABLE XXI

Correlation Matrix: Pre-test Attitude, Socio-economic Status, Parental Aspiration and Job Certainty : Group One

	Attitude	S-E.S.	P.A.	J.C.	Mean	Standard Deviation
Attitude	1				37,934	4,505
S-E.S.	-0,095	1			2,858	0,782
P.A.	0,250*	0,072	1		2,373	0,763
J.C.	-0,395**	0,140	-0,233*	1	3,767	2,465
					(N = 99)	

* = significant at p = 0,05, d.f. = 90.

** = significant at p = 0,01, d.f. = 90.

Critical r at 90 degrees of freedom is 0,205 (p = 0,05).

Table XXII below presents the correlation matrix for Group Two.

TABLE XXII

Correlation Matrix: Pre-test Attitude, Socio-economic Status, Parental Aspiration and Job Certainty : Group Two

	Attitude	S-E.S.	P.A.	J.C.	Mean	Standard Deviation
Attitude	1				36,354	4,289
S-E.S.	-0,210	1			3,354	1,041
P.A.	0,216	-0,082	1		2,375	0,841
J.C.	-0,480**	0,323*	-0,150	1	3,625	2,237
					(N = 48)	

* = significant at p = 0,05, d.f. = 45.

** = significant at p = 0,01, d.f. = 45.

Critical r is 0,288 at 45 degrees of freedom (p = 0,05). The underlined r's in the matrix are significant.

5.7 Personality Analysis of the Experimental Class in Group Two

In an attempt to throw light onto the failure of class 9c to improve its mean attitude score, the personality profile of the class was calculated to provide data for this purpose.

Table XXIII below lists the relevant data.

TABLE XXIII

Group Two H.S.P.Q. Factor Means, Class 9c

Factor	Mean (Stens) (N = 21)	Standard Deviation
A	4,857	2,104
C	5,380	1,856
D	5,523	1,778
E	7,666	1,278
F	6,142	1,878
G	5,571	1,832
H	5,523	1,470
I	5,380	1,856
J	5,428	1,804
O	4,857	1,681
Q_2	6,047	1,716
Q_3	5,190	1,661
Q_4	5,952	1,774

5.8 Subjects' Comments on the Program

Apart from the four questions of the Program Benefit Assessment Questionnaire, subjects were also invited to write down their general comments concerning the program. These comments were content analysed. The following list of comments is derived from the remarks made by the subjects in Group One Experimental Classes.

The figures in parentheses following the comments represent the number of endorsements made for each comment.

1. Give more specific examples. (4)
2. The program needs a more practical orientation. (3)
3. Values and attitudes were overtaught. (1)
4. Program was too drawn out. (1)
5. The program should be done in earlier standards as most pupils have made their choice already by Std. 10. (4)
6. Seems to be aimed at a younger group. (2)
7. Needs more discussion. (2)
8. Needs more problems. (1)
9. Problem answers had reasons which seemed unrelated to the problem itself. (1)
10. Made me aware of other abilities I could use. (1)
11. Program too vague. (1)
12. Program was broken up by exams. It might have been better if it was taught earlier in the year. The pressure of impending matriculation exams detracted attention from it. (1)

13. Problems were too contrived. (1)

14. I learnt a way of looking for a career. (1)

The general comments offered by class 9c of Group Two were also content analysed. A few gratuitous remarks were made and only two comments of value were found. These were :

1. Lessons drawn out too much. We should do something new. (3)
2. Discussions were shallow, and didn't cover the topics in enough depth, e.g. the qualifications and things that different jobs offer. (1)

5.9 Teachers' Evaluation of the Program and of the Response of their Classes to the Program

The following questions formed the basis of interviews conducted with the teachers at the conclusion of the program.

1. What did you think of the program in terms of (a) content, (b) principles and (c) level at which it was set ?
2. Did you find it easy to teach and to understand ?
3. How did your class(es) respond to the program ?

Mr. Blue - Group One

Q.1. Mr. Blue found the program to be personally stimulating. He appreciated the coherence of the approach and thought, within the limitations of his knowledge that the principles dealt with were satisfactory. He thought that in some instances, the level was too simple, e.g.

in the stimulus example attitudes presented in the section dealing with attitudes.

Q.2. He found the program easy to teach and to understand. In some instances, he was caught up in discussion and had to hurry on with the next section of the program.

Q.3. Class E_1 disagreed with many of the statements made and examples offered, e.g. with the stimulus attitudes of the attitude section of the program. Discussion came from most sections of the class and the pupils appeared to find the program interesting.

Class E_2 also voiced disagreement with parts of the program. Discussion in this class tended to be monopolised by a minority section with the result that many pupils were unable to express their opinions or questions.

Mr. Blue, in addition to the comments above, also felt that his time was restricted and could have benefited with one or two more periods. This was a problem with the school time-table and not the program itself.

Mr. Brown - Group Two

Q.1. Mr.Brown found the content and principles of the program straightforward and comprehensive. He felt that the program tried to cover too much in a limited time. His own approach, utilising his program, is much slower i.e., in the same period of time as the experimental program occupied, he covered fewer areas, but in greater depth.

Q.2. The program was easy to teach.

Q.3. The response of the experimental class was disappointing. In general, Mr. Brown finds that the pupils at his school are not given to self-examination. There was little interest or motivation in his class. In some cases, he doubted the validity of the responses of some of the pupils on the second administration of the attitude questionnaire as they seemed not to be serious in their approach.*

Mr. Brown also reported that his pupils did not attach much importance to the program as, in the words of one of his pupils, 'We are not really doing anything in class as there are no exams' - a clear indication of a value set in relation to examinations.

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* The responses of the pupils concerned were in fact scrutinised for any evidence of random response style, which would show up as responses deviating markedly from the responses obtained on the first administration of the various questionnaires. No protocols were excluded as scores from pupils other than those whose validity was doubted showed wide deviations from their initial scores. There was thus no reasonable basis for excluding some scores and not others.

CHAPTER SIX

Matching of classes

Testing the hypotheses

Correlational analyses

Evaluation of the program

Teaching style

Vocational maturity of South African pupils

Conclusions

6.1 Matching of Classes

The results indicate that no significant change over time took place in the attitudes of the control classes, as measured by the Attitude Scale. Interestingly enough, the Post-test means on the Scale showed a slight decrease over the Pre-test means, a finding similar to that of Goodson (1969).

No attempt was made to match the classes on the variables of age, intelligence and socio-economic status before the experiment as it was not possible to change existing class composition. Comparisons of these factors across classes indicated that in Group One, only class E_4 was significantly different in age from class E_3. This was of no consequence, however as age did not affect any of the results obtained. Classes E_1 and E_2 were not significantly different in intelligence, as were E_3 and E_4. The experimental classes as a group, however, did differ significantly from the control classes, as a group. In this case, it was found that intelligence did not have a significant relationship with attitude and therefore this difference was apparently of no importance. There was no significant difference in socio-economic status amongst the classes of Group One. (See Tables IV, V and VI).

The classes in Group Two were not significantly different with respect to age and intelligence. They differed significantly on the factor of socio-economic status. (Table II). This variable did not have a significant relationship with

attitude. (See Table XXII).

6.2 Testing the Hypotheses

Hypothesis 1 was sustained for one experimental class in the case of Group One, and was rejected in the case of Group Two. (Tables VII and VIII). Differences between classes E_1 and E_2 of Group One were examined in an attempt to explain the results. There was no significant difference between the classes in intelligence (Table V). Significant differences were found between them on certain personality traits (Table XVIII). These were factors F, G and Q_3 of the High School Personality Questionnaire, which were all significantly different at the $p = 0,01$ level.

Interpretation of these results must be done both practically and statistically. Statistically, the differences are of course significant. The practical interpretation requires an understanding of the nature of the H.S.P.Q. In normal use, when an individual's score is compared to the norms, a sten range of 4 to 7 is taken as a normal range, i.e. scores of 1, 2 or 3 and 8, 9 or 10 are taken to be in the extreme range of distribution. The procedure when comparing means of groups is different. It is known that the standard deviation of a set of means of random groups is much less than that of the individuals comprising them. Therefore in comparing a group mean to the standard scores in the Manual, the standard deviation of 2 stens must be substituted by the standard deviation of means in the particular set of groups of interests. Such standard deviations are not available and would

usually have to be calculated by the researcher. Cattell and Cattell (1969) recommend that taking a group sigma as being one tenth of an individual sigma is a good approximation. This would mean that in the present case, practical significance could be ascribed to any group mean that was above 5,7 or below 5,3 (since the 50th percentile is set at sten 5,5 and one tenth of the standard deviation will be 0,2 stens). In order to make a conservative estimate, it has been decided to set practical significance as being beyond the limits of 5,0 and 6,0 stens.

In the case of factor F, it was observed that E_2 had a mean score well beyond the limit. The Manual (Human Sciences Research Council, Manual of the H.S.P.Q., 1974) describes high scores as representative of a happy-go-lucky, heedless attitude and a generally enthusiastic nature. The opposite pole is described as sober, taciturn and introspective.

Factor G is concerned with superego strength. E_2 scored below the limit and can thus be considered as being significantly "frivolous", "undependable" and "disregarding obligations". Cattell and Cattell (1969) remark that a high score on this factor is usually associated with persistence and good organization of thinking.

Factor Q_3 is related to self-control and self-concept. E_1 scored above the cut off point on this and can thus be regarded as being significantly high in terms of an integration of the self-concept with general behaviour, as being significantly self-controlled, possibly even tending to compulsivity.

High scorers are usually objective, decisive, conscientious and considerate.

Further evidence concerning the differences between classes E_1 and E_2 are found in their responses to the Program Benefit Questionnaire (See Table XIX). A possible difference exists in relation to their experiences of the way the program was taught to them. Here a chi-squared analysis was just below significance at the 0,05 level, likely due to the small numbers of subjects in each category. An examination of the responses of E_2 to the Questionnaire (Appendix 6 and Table XIX) indicates a greater need for class discussion than indicated by E_1. The teacher confirmed this in his evaluation of the program (Section 5.9, preceding).

There are significant personality differences between the classes, which may account, in part for the different results obtained from them. The teacher's different approach with each class may also be a function of this difference in group personality. E_1 was found to have a significant degree of self-control, foresight and conscientiousness, while E_2 was found to be significantly light-hearted (as opposed to serious), showing a careless disregard for obligations and possibly lacking a well organized approach to thinking.

Group Two

Hypothesis 1 was rejected for Group Two, i.e. no significant improvement in attitude score was found for 9c. It is difficult to find an explanation for this as this class cannot be

compared to any other. The comments offered by the teacher (Section 5.9, preceding) indicate that this class could not see the benefit of careers guidance and were therefore not interested in the program. An examination of their responses to the Program Benefit Questionnaire (Table XX) indicates that they felt a need for more discussion, notes and information. The majority were unaffected by the program with respect to their career thinking. An additional piece of evidence that indicates their lack of involvement with the program is the very poor response to question 5 of the Program Benefit Questionnaire, i.e. the question inviting comments. A value set in relation to examinations was also expressed by a pupil to the teacher, indicating that a subject with no examinations attached was not regarded as important.

The group personality profile of 9c was calculated (Table XXIII) in order to throw light on the non-significant performance of this class. Using the cut-off points of 5,0 stens and 6,0 stens, as discussed earlier, five factors deviate significantly from the norm. These are A (low), E (high), F (high), O (low) and Q_2 (high).

Factor A indicates a reserved, cool and distrustful attitude. The class could best be termed 'sceptical', according to their score on this factor. Factor E is related to dominance and aggressiveness. Classes with high scores on this factor are likely to be unruly and difficult to control. Factor E had the most extreme score. Factor F has been previously discussed and refers to a heedless, unserious approach to matters

and possibly a lack of responsibility. Factor O indicates self-confidence, lack of sensitivity to others and a preference for straightforward, simple action. Factor Q_2 indicates self-sufficiency and resourcefulness. It must be pointed out that factor Q_2 appears contradictory to the other qualities described in that Cattell and Cattell (1969) write :

> "At school, Q_2 + children commonly prove to be decidedly on the seclusive side. They also seem to have older friends and mature interests and their general achievement is higher". (p.33)

It might be that the small N in the case of 9c renders the validity of the results doubtful. However, some of the factorial qualities described do seem to support each other and give rise to the following description of 9c, as a group. Aggressive, sceptical, couldn't-care-less attitude, brash self-confidence, preference for simple, straightforward action rather than involved cerebral activity. It is stressed that this description is tentative. Nonetheless, the teacher's evaluation of this class and their responses to the Program Benefit Questionnaire (see Table XX) suggest that the class was in fact difficult to control and was not interested in the analytical self-insight approach to career planning developed in the program.

Hypothesis 2

This hypothesis was sustained for both experimental classes of Group One and rejected for Group Two. The results of the chi-squared analysis of certainty of future job (Tables IX

and X), in the case of Group One, clearly show that classes E_1 and E_2 were more certain about their planned jobs, after the program. No attempt was made to assess the realism of the intended jobs and it must be borne in mind that an improvement in certainty does not necessarily reflect sensible aspirations.

The failure of class 9c of Group Two, to improve their 'job certainty' could be attributed to the lack of motivation and interest on the part of this class, or it could be due to the fact that Standard 10 pupils are faced with the imminent implementation of their job goals, and therefore the issue of job certainty has greater relevance and importance for this group.

One of the most consistent results to emerge from research (e.g. Hoyt, 1955, Healy, 1974) is that certainty of job goals improves as a result of structured discussion and consideration of work and related aspects. The present results confirm previous findings and point to the value of a systematic structured approach to career education.

Hypothesis 3

One of the more surprising results to emerge from the present research is that in the sample used, being a total of 192 subjects, drawn from different backgrounds and two school standards, intelligence was found not to be significantly related to attitude scores. (Table XI). One must bear in mind that attitudes are only one aspect of the area of be-

haviour termed 'vocational maturity'. There are other aspects, such as planning behaviour, self-knowledge, goal setting, and so on, which may well bear a relationship to intelligence. Previous research, such as Asbury (1968) has found significant correlations between Attitude Scale scores and verbal intelligence. Crites (1973, p.18) reports a number of studies which all found significant correlations, using a variety of intelligence measures.

The New South African Group Test, which generated the I.Q.'s used in this research, was administered three,and four, years before the present research was done. The nature of the N.S.A.G.T. is such that a substantial variation in I.Q. score over a period of time is not expected. One can, however, always question the general reliability of a group test of intelligence, especially in the teen-age years, when rapid development is occurring. The higher than average scores which were obtained throughout the classes measured also suggest that the norms of the N.S.A.G.T. may need recalculating to suit an urban sample. The Manual of the N.S.A.G.T. (1965) suggests that I.Q.'s should not be used for more than two years after testing. In the absence of other data to explain the present results, one must assume then that the I.Q. scores used were not reliable enough for an accurate test of the hypothesis to be made.

Hypothesis 3a

The available research reviewed did not attempt to link a change in vocational maturity to factors other than the

experimental procedures. Since it has been frequently shown that intelligence is related to vocational maturity or more correctly, Attitude Scale scores, it was hypothesized that intelligence is related to a change in attitude scores, the object being to establish whether level of intelligence is related to an improvement in attitude scores.

Tables XII and XIII list the results of this Hypothesis. No significant difference was found in intelligence for those subjects who showed a Post-test improvement in attitude scores, as opposed to a Post-test decrease in attitude scores, for either Group One or Group Two experimental classes. The Hypothesis was therefore rejected.

Hypothesis 4

Various researchers (e.g. Heilbrun, 1960, Bartlett, 1968, Munley, 1975) have all put forward evidence to suggest that personality adjustment (or maturity) is related to vocational maturity. The term adjustment carries a clinical connotation and is perhaps better replaced by the term maturity. Different authorities will have different conceptions of what constitutes mature behaviour (relative to age, cultural and social standards) and there thus may be argument over the validity of the following dimensions. Heath (1965), drawing on empirical and theoretical work, identified five developmental dimensions that define a maturing person :

1. Increasing stability of internal organization and resistance to and quick recovery from, the disorganizing effects of new information.

2. Open to and seeks out new information which is progressively integrated with existing self-organization.

3. More aware of reality based forms of information rather than personal, need-dominated forms (allocentric vs. autocentric).

4. Capable of increased awareness through symbolic representation of both internal and external worlds.

5. More autonomous in behaviour and not immediately controlled by the immediate environment, by his motivational state or by his earlier childhood history.

It should be clear that, seen in these terms, mature behaviour is adjusted behaviour.

These dimensions were applied to the analysis of the results of Hypothesis 4. The Hypothesis was tested by grouping all subjects according to whether their Pre-test attitude scores were above or below the mean for their school standard, and then comparing them on the personality factors of the H.S.P.Q. Tables XIV and XV prexent the relevant data. The results indicated that, in the case of Group One, significant differences existed on factors C, G and Q_3, while in Group Two, significant differences existed on factors E and I.

Group One

Factor C is concerned with "ego weakness vs. ego strength". The above average vocationally mature group scored above the limit of 6,0 stens (see above) and can thus be regarded as having a significant degree of 'ego strength', which

refers to emotional stability, constancy of interests and openness to reality. (Human Sciences Research Council; Manual for the H.S.P.Q., 1974).

Factor G refers to expediency vs. conscientiousness. The below average vocationally mature group scored below the cut-off point of 5,0 stens and can therefore be regarded as having "low superego strength" (Manual, 1974) described in terms such as "expedient", "self-indulgent" and "undependable".

Factor Q_3 distinguished the two groups at the $p = 0,01$ level. In this case the above average group scored above the cut-off point and the below average group scored below the cut-off point. Factor Q_3 refers to self-concept and how this is incorporated into the general personality. Cattell and Cattell (1969) note that high Q_3 is associated with success in productive, organizational activities. It is associated with objectivity, balance and decisiveness. Low Q_3 has been associated with uncontrolled, self-centred behaviour and a disregard of social rules.

The above average vocationally mature group and below average vocationally mature group can then be distinguished along various personality factors. The above average group has a significant degree of emotional stability, consistency of interest, self-control and concern for social standards, while the below average group is characterised by expediency, self-indulgence and carelessness with regard to socially

accepted forms of behaviour.

These dimensions seem to characterise, in a general sense, mature vs. immature behaviour (referring to Heath's dimensions) and thus these results support the Hypothesis that personality adjustment (or maturity) is associated with vocational maturity.

Group Two

The results in the case of Group Two lead to a different interpretation. The above-average group was observed to be well above the cut-off point of 6,0 stens on factor E. (The below-average group was also above the cut-off point). Factor E is associated with aggressiveness and dominance (as opposed to submissiveness). High E scores are associated with a delinquent-behaviour problem in adolescence (Manual, 1974) and this suggests a reason why the teacher found this class unresponsive.

Factor I is labelled 'tough-minded vs. tender-minded'. The above-average group scored below the cut-off point of 5,0 stens on this factor. Low scorers on this factor are considered to be practical, unsentimental and down to earth.

These results suggest that vocational maturity, at different ages and for different groups, may be associated with differing personality characteristics. Although it is not evident from the socio-economic status measures, Group One subjects attend a school which places a premium on academic performance.

Their school has a long tradition of achievement and is generally regarded as a boys' school of quality. Pupils who attend this school are generally from well established home backgrounds and are in all likelihood very upwardly mobile. Subjects from Group Two, on the other hand, attend a large, new, co-educational school which draws from a predominantly new middle class and lower middle class community. Although this is an unproven assertion, it is thought that the general level of cultural attainment and development is higher in the case of Group One subjects. Therefore the results from Group Two must be considered as not contradicting those from Group One but rather yielding additional information. This result in fact suggests that a finer understanding of the meaning and relevance of vocational maturity can be gained by referring to the social standards and cultural level of the group under consideration, rather than adopting a broad, overall view.

Hypothesis 4a

As in the case of trying to relate intelligence to a change in vocational maturity, an attempt was made to assess whether or not personality is associated with a change in vocational maturity. Previous research has not specifically linked an increase or decrease in vocational maturity, as an effect of educational programs, to personality factors. The hypothesis that personality is associated with such change was therefore formulated to test for such a relationship. Experimental group subjects were grouped according to whether their Pre-post

attitude score differences were positive or negative. Personality factors were then compared between these groups. Tables XVI and SVII list the results of this analysis. No significant differences were found for either Group One or Group Two.

The results in the case of Group One conflict with those found earlier in which it was seen that significant differences existed between classes E_1 and E_2. In that case, the analysis was based on a need to explain the increase of vocational maturity for E_1 and the lack of increase for E_2. In other words, that analysis was another way of testing for the association between personality and change in vocational maturity. That analysis suggested the classes, as corporate bodies, were characterised by different personality factors. The present analysis, combining the two classes, suggests that personality is not associated with a change in vocational maturity. The difference in results is a function of the way in which the subjects are combined for analysis. Both classes E_1 and E_2 consisted of subjects who increased and decreased their attitude scores, yet significant differences were found, whereas a 'purer' combination of subjects who increased their scores only, and who decreased their scores only, produced no significant differences. It is argued here that these results suggest very strongly the existence of a 'group identity' for each class, which accounts for the different results obtained for them. The hypothesis is rejected, based on the analysis of the data presented in Table XVI, but the results indicate that a group identity may account for a

relationship between personality and change in vocational maturity.

The results from Group Two also lead to a rejection of Hypothesis 4a. Here, unfortunately, no further analysis, as in the case of Group One could be undertaken.

In general, the results discussed above are only as valid as the instrument used to obtain them. Anastasi (1968) is very cautious in her appraisal of the Sixteen Personality Factor test, on which the H.S.P.Q. is based. She regards the traits proposed by Cattell as being tentative, in spite of twenty years of research on the factorial approach. Limitations of the H.S.P.Q. have been previously mentioned. The existence of a mixed group of boys and girls in Group Two should not lead to biases in interpretation as all raw scores were converted to appropriate sten scores. What might be an important factor is the fact that many of the subjects in Group One were over eighteen years of age. The H.S.P.Q. norms have not been satisfactorily established (to this author's way of thinking) at this age level. (See Manual, p.27). This objection is countered by the empirical observation noted earlier that group membership i.e. school class, exerts an influence on the personality of the subject and that although a subject may be older than eighteen, his behaviour may be typical of the class norm, which is based at a younger age level.

In any event, the results obtained on the H.S.P.Q. have, on the whole, not been at odds with previous research findings

and there does therefore appear to be justification in accepting them as being valid.

6.3 Correlational Analyses

Various correlations were undertaken with the data in order to investigate the relationships between socio-economic status, parental aspiration, Pre-test job certainty and Pre-test attitude scores. No hypotheses were formulated for these analyses as the research reviewed was not suggestive enough to warrant this action.

Tables XXI and XXII present the results of the correlation analysis for Group One and Group Two. In both groups, Pre-test attitude score correlated significantly (at the $p = 0,01$ level) with job certainty. The correlation indicated that a high level of certainty is associated with a high level of vocational maturity. As has been discussed earlier (Chapter Three) unless there is an accurate measure of the realism of job aspiration or choice, the fact that a pupil is certain about his future goals does not mean that his certainty is satisfactory in the sense of being realistic. Realism of aspiration is a dimension of vocational maturity and the results only suggest that certainty, amongst senior school pupils, is related to vocational maturity.

Heath (1965) defined five dimensions of maturity, e.g. autonomous behaviour and stable behaviour and found that the major characteristic which distinguished mature college men from immature college men was that the immature men lacked

clear goals for their future. Here, certainty about future goals has been associated with personality maturity. The results, discussed above, relating personality maturity to vocational maturity thus receive support from the significant correlation obtained between job certainty and attitude scores.

In Group One, parental aspiration was found to be significantly correlated with Pre-test attitude scores. This correlation was not significant in Group Two. The study of Kerckhoff and Huff (1974) discussed in Chapter Three indicated that there is a relationship between parents' goals for their children and childrens' goals for themselves. The more vocationally mature adolescent should be able to make his own decisions and not be unduly influenced by outside sources. A child who is influenced by his parents' aspirations for him is likely then not to be as vocationally mature as a counterpart who is relatively independent in his planning.

The correlation obtained suggests that those subjects whose parents had not clearly or strongly expressed a career aspiration for them were more vocationally mature. In the case of Group Two, the correlation, not being significant, may suggest that the above argument lacks validity. Group Two, however, was younger than Group One, consisted of males and females, and the classes comprising the group were significantly different in terms of socio-economic status. For these reasons, the results in the case of Group Two are not comparable to those of Group One (referring here

specifically to the relationship between parental aspiration and vocational maturity).

In Group One, parental aspiration was significantly correlated with job certainty. The direction of the correlation was the same in Group Two but the magnitude did not reach significance in this case. The correlation for Group One suggests that the more certain subjects have parents who do not express specific aspirations for them. This is in line with the suggestion above that certainty and vocational maturity are related, and that a lack of parental aspiration and vocational maturity are also related. No clear reasons are available to explain the lack of significance in the case of Group Two, except for those discussed above.

In Group Two, it was found that socio-economic status correlated with job certainty. The correlation suggests that higher levels of certainty are associated with higher socio-economic status. This result is interesting but exists in isolation.

Haller and Portes (1973) found that parental aspiration was related to socio-economic status in that parents in the higher socio-economic levels tended to have more specific aspirations for their children. No significant correlations were found between these factors in either Group One or Group Two. The correlation in Group Two was in a negative direction while that of Group One was positive.

Generally, the results obtained from the correlational

analyses suggest that job certainty and vocational attitudes are related. Further, specific parental aspirations are associated with lower levels of job certainty. Certainty about future job and vocational maturity can both be seen to be part of a broader area of personality maturity.

6.4 Evaluation of the Program

Question 2 of the Program Benefit Questionnaire (Appendix No. 6) yielded data pertinent for future development of the program. (Tables XIX and XX). Group One gave a 25,0 percent endorsement to the part on vocational choice problems, a 21,7 percent endorsement for the part on abilities and an 18,3 percent endorsement for the part on interests. Only 3,3 percent of the subjects indicated that the program was of no use to them.

Group Two, on the other hand, gave only a 7,4 percent endorsement for the problems, a 14,8 percent endorsement for the part on abilities and a 33,3 percent endorsement for the part on interests. They gave a 37,0 percent endorsement to Section A of question 2 (indicating that the program was of no use). This was the largest endorsement given by Group Two.

These differences between the groups indicate in the first place that their involvement with the program was vastly different, as witnessed by the endorsements given to question 2a. The differences also indicate that the Standard Nine

class is less vocationally mature than the Standard Ten classes as Group Two indicated that 'interests' were the most useful section of the program to them, while Group One indicated that the 'problems' and part on abilities was most useful to them.

Section 8 of Chapter Five lists the comments offered by the subjects about the program. The most frequent comments offered by Group One were requests for more specific examples, a more practical orientation, and an indication that, for some, the program served no purpose as they had made a career choice and were presumably not inclined to reconsider it.

Group Two offered virtually no constructive comments.

Taking the facts above into account, a future development of the program would have to place different emphases on different factors at various age levels. For example, 9c indicated that the part of the program dealing with values was of no use to them. This may well be a result of the way the program was taught, or of 9c's own idiosyncratic needs. On the other hand, this class gave a strong endorsement to the part of the program dealing with interests.

Classes E_1 and E_2 indicated that the problems and part on abilities was of value to them. Further examples should be incorporated into the program and obviously, such an educational program would have more potential value if it was taught at a lower school standard.

6.5 A Consideration of Teaching Style

No check or evaluation on the teacher's style and ability was included in the design of the experiment. The results, in the

case of Group One, clearly indicate that differences between the experimental classes on vocational maturity development can be attributed to personality factors, characteristic of each class. The teacher, in his turn, may well respond differently to the classes because of the personality differences. From the comments offered by the teacher of Group One, it is clear that he did not cover the material in exactly the same way with E_1 as with E_2. This may have had an effect on the outcome of the program but it is difficult to estimate the probability of this.

In the case of Group Two, it was clear that the teacher did not have a good rapport with the class. However, the evidence is clear that 9c lacked interest and motivation and thus the teacher's style cannot be confidently implicated in the failure of the program to meet its objectives with this class.

6.6 Vocational Maturity of South African Pupils

Mean scores on the Attitude Scale were obtained for a Standard 10 and a Standard 9 group of pupils.(See Table XI). It is interesting to compare these scores to scores listed by Crites (1973), obtained on various samples of 11th and 12th grade pupils in four American States.

For the 11th grade, Crites gives a mean of 36,03, S.D.= 5,28 (N=2203). For the 12th grade, the mean is 37,23, S.D.= 5,19 (N=2258). The South African sample means are given here again for the sake of convenience. Standard 9 mean is 36,05, S.D.= 4,457, (N=77). Standard 10 mean is 37,93, S.D.=4,459 (N=115). As can be seen, the means compare very closely and are also evidence of the cross-cultural validity of the Attitude Scale.

6.7 Conclusions

1) Vocational maturity can be developed by means of a class program of career education.

Although only one experimental class,of Group One, showed a positive change in attitude score, factors were found to account for the lack of positive results in the other two classes. These factors related to personality generally, and interest and motivation particularly. It was apparent that class E_2 was not taught the program in exactly the same way as class E_1. To what extent this influenced the results is not known but a normal variation in style between classes will always exist. Research has suggested that the Attitude Scale provides a good estimate of vocational maturity. It was pointed out that there are other aspects of vocational maturity, such as planning and decision making, which are not directly assessed by the Attitude Scale. The conclusion reached above is therefore within the limitations imposed by the instrumentation used.

2) Job certainty can be increased as a result of an interested participation in a classroom program of career education.

Both experimental classes of Group One showed a significant positive change in their levels of job certainty. The experimental class of Group Two did not. It was argued that this class was not interested in the program and consequently was not able to derive any benefit from it. The positive

results in the case of Group One are encouraging for they indicate that, in the case of E_2, where no significant attitude change occurred, some benefit was still derived from the program.

3) Intelligence is not related to vocational maturity.

This is a surprising result in the light of repeated research findings indicating the opposite to this. The most likely explanation for this result is that the intelligence scores used were no longer reliable due to their age. The scores used were obtained three to four years before the present research was conducted and although intelligence scores should, by definition, remain relatively constant over the years, the manual of the New South African Group Test recommended that I.Q.'s obtained with this test should not be used for more than two years after measurement.

4) Intelligence is not related to a change in vocational maturity following participation in a program of career education.

No relationship between intelligence and a relative increase or decrease in attitude scores could be found. It was suggested in the paragraph above that the I.Q. scores used may have been unreliable. If this is so, then this conclusion may not be valid. However, within the framework of the present research, this conclusion is justified by the results.

5) Personality factors, associated with the concept of maturity, are related to vocational maturity.

The results from Group One were seen to clearly support this conclusion. The above average vocationally mature group of subjects were more emotionally stable, constant in their interests and concerned about social standards than the below average group, while the below average group was more self-indulgent and less concerned about socially accepted forms of behaviour than the above average group.

6) The relationship between personality and vocational maturity must be seen in the light of the norms and standards of the social group under consideration.

Group Two produced different results, in relation to Hypothesis 4, than did Group One. For a number of reasons, Group Two was not comparable to Group One and was therefore considered to contribute a different set of data from that given by Group One. For Group Two, vocational maturity was associated with aggressiveness and tough-mindedness. It was argued that Group Two represents a different social group to that which Group One was drawn from and that reference should therefore be made to the standards of the particular group being considered.

7) Personality is not related to a change in vocational maturity.

This conclusion carries a rider which suggests that a 'group identity' factor may be responsible for an observed relation-

ship between personality factors and a change in vocational maturity. The conclusion is based on the results of testing Hypothesis 4a (Tables XVI and SVII) in which subjects who increased their Attitude Scale scores were compared to subjects who decreased their scores. It was also observed that classes E_1 and E_2 (who respectively improved and did not improve their attitude scores) were significantly different on some personality variables. It was argued that the classes could be characterised by a class personality structure or a 'group identity' and that the factor of school class membership may account for a relationship between personality and vocational maturity.

8) Vocational maturity is positively related to job certainty.

For both Groups One and Two, it was found that the more vocationally mature subjects were more certain about their future jobs. This result is similar to that obtained by Healy (1974) and others and suggests that job certainty is a crude estimate of vocational maturity.

9) Parental aspiration is negatively related to vocational maturity.

Only Group One displayed a significant correlation between parental aspiration and vocational maturity. It was observed that the stronger or firmer the parental aspiration was, the less vocationally mature the children were. This result was seen to be in line with expectations derived from previous research. The lack of significance in the case of Group Two

was attributed to the differing age, sex structure and socio-economic status of this group and therefore did not invalidate the above conclusion.

10) Motivation and interest are important components for the outcome of career educational programs.

Based on interviews with the teachers, feedback responses from the classes and the overall personality structure of the experimental class in Group Two, it was argued that the lack of significant results for this class was due to their lack of interest in the program and consequent lack of motivation to participate at a meaningful level in the program. There is no doubt that the class's response to the program also affected the way the teacher taught it to them. This is of course a natural hazard in any teaching endeavour and does not invalidate the program.

The results obtained from the program are encouraging. They indicate that a short term program can facilitate the development of vocational maturity. The results indicate that interest, motivation and general maturity on the part of the pupils is an important factor. The program focused on self-awareness and the results obtained from the Standard 9 group of pupils indicate that self-awareness is not an important part of their thinking. It is possible that different approaches to the development of vocational maturity may have to be used, depending on the norms and standards of the social group dealt with. Thus the intellectually based, self-analytical approach appears suitable for boys who are studying in an

academically oriented school, while it appears not to suit adolescents with more practical needs.

The results have implications for the practice of guidance in our schools. It was earlier recommended that the concept of guidance should be replaced by the concept of career education, as guidance has been defined as the giving of advice and information only. School counseling, which is seen as part of a guidance service, is in fact incompatible with the concept of guidance as counseling has not been defined as the giving of advice and information. School counseling, as seen by the Committee for Differentiated Education (Report of the Committee .... 1971), is regarded as a process whereby a pupil is lead to make his own decisions and judgements. This is a very important idea for the results of this Thesis have suggested that vocational maturity is part of an overall, personal maturity and self responsibility and the ability to make decisions are aspects of mature behaviour, as this term is generally understood.

An important aspect of career education then would be to focus on personality development. It is obvious that providing pupils with knowledge about occupations and occupational choice will not assist them to make sound career plans unless they are interested in thinking about their future in a mature way. A career is part of life, not merely a means of earning a living and career education should properly be concerned with preparing pupils for life.

One may consider the current curriculae of our schools with some alarm. We are living in a fast changing world where new skills in adaptation are needed. It is very difficult to see how schools are formally preparing their pupils for the demands of life in the real world. A comprehensive career education program should, apart from being concerned with job choice and career planning, also focus on developing the maturity of pupils. This could be done by setting up programs of personal exploration such as group encounters, and simulated occupational exercises, where planning and decision making is emphasized. These ideas are not new and have been successfully used before. (See, for example, Ivey and Alschuler, 1973).

It is hoped that the results and ideas discussed in this thesis may stimulate further development in career education in South Africa. One obvious line of development would be to develop a comprehensive program, extending over the high school years, focusing on the different career developmental tasks, (as elucidated by the research of Super and his colleagues; e.g. Super and Jordaan, 1973), as the pupil progresses through the standards. This would be accompanied by programs focusing on the development of interpersonal and decision making skills so that the pupil, on leaving school, may be better equipped to deal with the new phase of autonomous adulthood he is entering.

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APPENDIX NO. 1

Raw Data for Group One Subjects
(Classes E_1 to E_4)

Ages are expressed in years.

x denotes scores not available.

The experimental classes are identified by the coding prefix "00" and "01". The control classes are identified by the prefix "10" and "11".

CLASS E_1

Identifying Code	Age	I.Q.	Pre-test Att.Score	Post-test Att.Score	Change in Att. Scores	Socio-Econ. Status	Parental Aspiration	Job Certainty		
								Pre-test	Post-test	Change
0001	18,25	112	41	36	-5	3	2	2	1	+
0002	17,16	x	43	44	+1	2	3	1	1	0
0003	17,42	122	39	36	-3	4	2	4	4	0
0004	17,83	121	42	45	+3	3	3	2	1	+
0005	17,58	126	44	46	+2	3	1	2	2	0
0006	17,25	109	39	42	+3	2	2	6	6	0
0007	17,58	130	33	38	+5	3	2	7	5	+
0008	17,66	122	43	43	0	2	3	5	1	+
0009	17,16	118	34	34	0	2	2	3	1	+
0010	17,50	128	40	44	+4	4	3	2	1	+
0011	17,92	102	41	41	0	2	3	1	1	0
0012	17,83	98	40	39	-1	3	3	1	1	0
0013	16,92	127	37	42	+5	3	1	1	1	0
0014	16,75	145	41	44	+3	2	2	4	4	0
0015	17,66	127	45	41	-2	2	3	1	5	-
0016	17,66	114	42	46	+4	3	1	5	1	+
0017	18,00	117	31	33	+2	3	2	3	2	+
0018	17,83	117	40	44	+4	2	3	7	3	+
0019	16,66	x	41	42	+1	3	3	3	1	+
0020	17,42	141	45	47	+2	4	3	1	1	0
0021	17,33	111	40	45	+5	5	1	5	7	-
0022	17,50	130	42	43	+1	2	2	5	1	+
0023	17,58	130	44	43	-1	2	3	1	1	0
0024	17,08	126	36	39	+3	2	2	1	1	0
0025	17,50	118	36	42	+6	3	3	4	x	0

CLASS E_2

Identifying Code	Age	I.Q.	Pre-test Att.Score	Post-test Att.Score	Change in Att. Scores	Socio-Econ. Status	Parental Aspiration	Job Certainty		
								Pre-test	Post-test	Change
0101	16,92	124	36	36	0	2	3	3	1	+
0102	17,16	113	41	37	-4	1	1	2	1	+
0103	17,58	108	43	43	0	3	2	1	1	0
0104	17,83	116	36	30	-6	4	3	7	7	0
0105	17,58	116	36	39	+3	2	2	4	4	0
0106	18,0	108	36	36	0	2	2	7	7	0
0107	17,83	113	40	32	-8	3	3	5	4	+
0108	17,66	140	43	42	-1	3	3	2	2	0
0109	18,0	104	42	39	-3	3	3	4	x	0
0110	20,42	98	45	46	+1	2	3	4	1	+
0111	17,58	x	38	42	+4	4	3	1	1	0
0112	17,08	133	41	41	0	3	2	7	5	+
0113	17,50	113	32	31	-1	4	1	10	7	+
0114	17,33	128	33	33	0	3	3	3	1	+
0115	17,66	103	37	36	-1	3	3	3	6	-
0116	17,75	126	41	37	-4	1	2	3	7	-
0117	17,83	131	40	45	+5	3	2	5	1	+
0118	17,92	101	36	37	+1	2	2	4	4	0
0119	17,66	117	43	42	-1	3	3	1	1	0
0120	16,42	138	36	39	+3	3	3	2	1	+
0121	18,0	107	39	40	+1	4	2	10	10	0
0122	17,66	129	44	42	-2	3	3	1	1	0
0123	17,42	x	38	38	0	2	3	1	1	0
0124	18,25	103	36	41	+5	2	1	5	1	+

CLASS E_3

Identifying Code	Age	I.Q.	Pre-test Att.Score	Post-test Att.Score	Change in Att. Scores	Socio-Econ. Status	Parental Aspiration	Job Certainty		
								Pre-test	Post-test	Change
1001	17,83	115	32	41	+9	2	1	5	5	0
1002	17,16	108	35	39	+4	3	3	5	5	0
1003	17,16	125	36	34	-2	3	2	5	5	0
1004	17,50	111	27	21	-6	3	1	7	5	+
1005	17,16	100	38	37	-1	3	3	4	4	0
1006	17,58	109	40	36	-4	4	3	5	5	0
1007	17,50	109	33	32	-1	3	3	5	4	+
1008	19,16	93	43	43	0	3	3	1	2	-
1009	17,33	114	39	40	+1	4	3	5	5	0
1010	18,33	121	39	43	+4	2	1	2	4	-
1011	17,58	104	37	37	0	3	3	2	2	0
1012	17,66	104	26	33	+7	4	3	3	9	-
1013	17,92	x	36	30	-6	2	3	1	2	-
1014	17,75	122	41	34	-7	3	3	10	10	0
1015	17,66	98	36	36	0	3	2	5	5	0
1016	17,92	105	37	31	-6	2	3	5	5	0
1017	18,0	117	29	34	+5	3	2	7	2	+
1018	17,16	112	41	38	-3	3	2	2	4	-
1019	17,92	99	35	38	+3	2	1	8	5	+
1020	17,16	91	33	30	-3	3	3	5	5	0
1021	17,50	102	44	39	-5	3	2	1	1	0
1022	17,58	x	42	45	+3	3	3	1	1	0
1023	17,58	130	39	42	+3	3	3	2	2	0
1024	18,50	101	37	33	-4	3	3	2	2	0
1025	18,92	121	40	37	-3	3	3	4	3	+
1026	17,16	130	33	30	-3	2	3	7	7	0

CLASS E_4

Identifying Code	Age	I.Q.	Pre-test Att.Score	Post-test Att.Score	Change in Att. Scores	Socio-Econ. Status	Parental Aspiration	Job Certainty		
								Pre-test	Post-test	Change
1101	17,33	125	36	37	+1	3	3	4	2	+
1102	17,83	125	35	36	+1	3	3	1	1	0
1103	17,66	114	42	40	-2	4	3	1	1	0
1104	17,08	110	37	38	+1	4	3	8	5	+
1105	19,66	111	41	36	-5	2	2	4	5	-
1106	17,0	118	27	29	+2	3	1	4	1	+
1107	19,75	111	49	48	-1	3	3	1	3	-
1108	17,16	106	34	35	+1	5	2	10	6	+
1109	17,33	90	30	27	-3	2	1	10	6	+
1110	18,58	116	40	32	-8	3	2	5	6	-
1111	19,16	113	40	37	-3	4	2	2	4	-
1112	18,0	99	33	41	+8	4	2	2	2	0
1113	20,0	102	32	43	+11	3	1	1	1	0
1114	17,33	108	37	36	-1	3	3	2	4	-
1115	19,25	90	46	47	+1	1	3	1	1	0
1116	19,0	115	32	27	-5	3	3	3	10	-
1117	18,92	112	34	34	0	3	1	5	5	0
1118	17,5	94	35	36	+1	3	3	2	2	0
1119	18,25	113	34	42	+8	2	2	3	2	+
1120	17,85	100	32	23	-9	3	3	7	5	+
1121	17,83	114	39	44	+5	3	2	1	1	0
1122	17,33	108	44	41	-3	4	1	1	1	0
1123	17,75	121	39	32	-7	3	3	2	8	-
1124	17,08	x	31	27	-4	3	1	4	6	-

APPENDIX NO. 1

'Program Benefit' Questionnaire Responses

Responses

Code	Question No.'s 1	2	3	4
0001	c	f	d	a
0002	b	f	d	a
0003	b	c	d	a
0004	c	c	d	c
0005	c	b	d	b
0006	d	b,e	a,c	c
0007	c	e	d	c
0008	b	f	a	a
0009	a	a	e	a
0010	c	d	c	a
0011	c	e,f	a,d	a
0012	b	b	b	c
0013	a	c,d	d	a
0014	a	e	d	a
0015	c	c,d	c	a
0016	c	d	d	a
0017	c	f	c,d,e	a
0018	c	c,d	c	a
0019	b	b	a	a
0020	b	c	a,d	c
0021	c	b	d	a
0022	c	f	d	c
0023	a	b	f	c
0024	b	f	c	a
0025	b	d	c	d

APPENDIX NO. 1

'Program Benefit' Questionnaire Responses

Responses

Code	Question No.'s 1	2	3	4
0101	c	c	c	a
0102	c	b,d	d	a
0103	c	c	a	c
0104	b	f	a,c	d
0105	c	e,f	b	a
0106	c	b	c	c
0107	c	c,d	c	a
0108	b	b	c	a
0109	a	d	c	a
0110	b	e	d	a
0111	c	e	c,d	a
0112	a	f	a	a
0113	b	f	e	a
0114	a	f	b,c	a
0115	b	a	e	a
0116	a	a	b,c,e	a
0117	c	f	c	a
0118	b	d	d,e	d
0119	c	e	c,d	c
0120	b	b,e	c	d
0121	c	d	d	a
0122	b	f	b,d,e	a
0123	a	c,d,f	c	a
0124	c	d	c	c
0125	c	d	c	c

APPENDIX NO. 1.

High School Personality Questionnaire Raw Scores (Form B) for Subjects in GROUP ONE

CODE NO.	FACTORS													
	A	B	C	D	E	F	G	H	I	J	O	Q_2	Q_3	Q_4
0001	13	8	12	11	12	8	11	10	2	11	9	11	17	12
0002	12	10	10	10	15	5	7	14	14	10	11	12	14	12
0003	10	7	11	13	9	12	13	4	9	11	15	12	12	11
0004	13	7	14	10	8	10	14	12	12	7	7	6	18	14
0005	8	5	12	14	8	6	11	8	6	7	10	10	16	10
0006	19	7	17	5	4	6	18	10	13	6	8	9	12	6
0007	15	9	12	3	10	8	16	8	11	8	11	11	18	8
0008	12	7	11	12	16	7	16	16	10	10	15	9	14	10
0009	9	8	15	14	12	12	9	11	11	13	12	10	8	14
0010	12	8	13	11	13	17	14	18	4	4	6	10	16	7
0011	10	6	10	9	14	8	13	13	12	8	2	6	18	12
0012	7	8	13	7	10	9	11	9	6	9	13	14	14	9
0013	16	7	10	10	9	14	10	12	7	8	8	11	16	13
0014	5	9	14	6	15	5	10	11	5	13	7	14	18	6
0015	6	8	13	9	6	14	10	11	10	6	10	9	13	10
0016	11	9	14	8	9	8	14	14	8	6	9	13	18	8
0017	8	6	8	9	13	10	9	12	6	10	11	9	10	14
0018	14	8	14	11	10	9	8	17	5	4	9	9	17	9
0019	16	7	11	6	14	9	16	18	15	4	8	8	14	9
0020	14	8	16	10	14	11	13	15	10	5	7	9	8	12
0021	10	7	14	9	12	7	14	4	9	11	14	8	16	10
0022	12	10	13	15	17	18	14	12	10	7	9	5	14	10
0023	11	9	14	8	12	10	13	10	9	6	6	6	18	12
0024	13	13	11	12	11	8	8	9	11	8	8	12	11	7
0025	10	10	14	11	6	9	8	17	12	7	12	8	17	8

APPENDIX 1.

High School Personality Questionnaire Raw Scores (Form A) For Subjects in GROUP ONE

CODE NO.	FACTORS													
	A	B	C	D	E	F	G	H	I	J	O	Q_2	Q_3	Q_4
1001	9	9	11	11	16	12	9	12	6	4	8	5	9	10
1002	8	8	8	9	8	7	15	8	9	8	12	10	12	14
1003	14	9	8	14	10	9	10	2	10	8	10	5	12	10
1004	7	9	14	7	13	10	15	8	4	14	8	14	6	7
1005	10	9	15	3	8	5	15	17	10	9	6	15	15	6
1006	NOT AVAILABLE													
1007	NOT AVAILABLE													
1008	10	10	11	12	11	9	8	11	10	7	7	15	17	16
1009	16	10	10	8	10	6	13	11	5	8	7	10	13	5
1010	12	10	12	15	14	12	9	8	9	6	7	10	8	13
1011	12	8	13	6	10	10	12	10	6	9	13	9	10	10
1012	9	10	17	6	9	15	11	11	5	7	10	9	13	6
1013	8	7	12	12	7	8	11	6	11	6	10	11	11	14
1014	6	8	10	12	10	14	12	11	11	11	15	13	8	8
1015	14	8	14	3	14	13	10	13	13	8	5	11	12	8
1016	NOT AVAILABLE													
1017	11	7	11	9	10	10	9	9	6	11	10	11	11	10
1018	13	9	19	9	8	5	17	12	6	12	2	9	13	2
1019	9	6	8	16	11	7	10	7	5	6	10	9	10	16
1020	10	7	9	9	11	6	12	6	6	13	9	8	14	8
1021	16	7	8	20	8	6	10	9	14	12	9	12	10	12
1022	8	8	13	10	13	16	8	13	8	9	6	12	8	8
1023	6	9	12	11	4	5	8	8	9	14	14	14	14	16
1024	7	6	8	10	11	12	10	10	9	11	6	11	7	12
1025	4	8	13	5	10	10	12	10	10	14	6	15	7	8
1026	6	9	7	11	7	7	10	6	2	11	6	13	8	12

APPENDIX 1

High School Personality Questionnaire Raw Scores (Form B) For Subjects in GROUP ONE

CODE NO.	FACTORS													
	A	B	C	D	E	F	G	H	I	J	O	Q_2	Q_3	Q_4
0101	12	6	12	14	9	13	6	15	9	8	7	9	7	12
0102	17	8	10	8	11	16	12	15	9	8	8	5	16	10
0103	11	8	5	10	8	15	6	6	14	11	12	10	13	11
0104	10	8	7	10	10	11	4	16	11	12	12	10	11	11
0105	12	8	11	12	11	13	15	9	8	9	13	8	12	5
0106	NOT AVAILABLE													
0107	16	7	14	11	12	17	11	14	9	6	7	7	8	14
0108	13	9	12	11	18	7	13	10	15	6	9	10	16	7
0109	14	6	11	11	6	8	11	7	9	9	11	9	13	9
0110	13	5	11	11	9	13	10	14	5	11	12	12	12	10
0111	11	16	11	14	10	8	10	14	14	6	11	12	15	7
0112	17	7	10	11	10	18	6	20	7	4	11	6	11	11
0113	13	8	11	11	8	16	1	16	13	5	8	11	8	14
0114	6	9	6	11	9	17	6	6	3	12	9	6	10	14
0115	13	5	14	10	15	13	8	15	8	4	9	6	14	7
0116	13	5	15	12	8	10	9	14	13	11	4	9	13	14
0117	12	4	13	12	13	16	8	9	12	10	10	10	10	13
0118	12	5	11	8	12	16	9	7	11	3	11	9	14	15
0119	9	8	18	9	8	7	16	13	9	11	5	9	16	10
0120	9	10	13	10	12	10	8	14	2	8	10	6	10	10
0121	9	9	10	6	12	12	12	14	9	6	5	7	13	12
0122	8	6	7	7	8	14	9	12	10	7	10	11	13	11
0123	18	9	17	4	8	10	17	15	8	4	3	5	16	7
0124	16	6	17	12	9	13	10	16	16	7	3	7	13	12

APPENDIX 1.

High School Personality Questionnaire Raw Scores (Form A) For Subjects in GROUP ONE

CODE NO	FACTORS													
	A	B	C	D	E	F	G	H	I	J	O	Q_2	Q_3	Q_4
1101	1	7	11	12	13	13	11	12	6	12	10	10	4	8
1102	15	9	9	10	18	14	7	11	4	8	14	8	4	12
1103	7	8	18	3	7	6	15	10	6	8	15	11	13	8
1104	14	8	7	11	12	10	10	9	8	11	11	13	10	16
1105	11	5	8	8	15	12	10	17	4	2	6	12	6	6
1106	NOT AVAILABLE													
1107	NOT AVAILABLE													
1108	NOT AVAILABLE													
1109	6	7	6	9	6	5	8	8	5	14	7	14	8	15
1110	4	7	6	8	13	11	8	10	2	5	10	12	11	11
1111	13	7	8	11	12	16	9	12	6	10	16	11	8	9
1112	11	8	6	18	6	7	12	7	10	14	9	8	9	13
1113	8	8	8	11	12	15	12	10	10	4	9	10	10	11
1114	NOT AVAILABLE													
1115	NOT AVAILABLE													
1116	6	7	7	11	11	8	12	6	14	11	11	13	11	9
1117	11	8	13	7	14	10	12	12	7	6	3	11	16	9
1118	12	9	13	10	15	12	15	8	2	11	6	11	13	11
1119	5	7	12	10	7	9	11	10	10	11	9	12	11	9
1120	13	5	7	6	17	20	3	8	6	10	11	11	5	8
1121	NOT AVAILABLE													
1122	3	7	11	12	14	12	9	9	8	11	9	15	11	7
1123	8	10	10	8	10	6	16	10	3	10	8	12	12	8
1124	11	9	6	13	11	7	9	8	4	12	8	8	11	16

APPENDIX NO. 2

Raw Data for Group Two Subjects

(Classes 9c and 9d)

Ages are expressed in years.

x denotes scores not available.

The experimental class is identified by the code prefix "100" and the control class by the prefix "101". Female subjects are identified by the suffix, "F".

CLASS 9c

Identifying Code	Age	I.Q.	Pre-test Att.Score	Post-test Att.Score	Change in Att. Scores	Socio-Econ. Status	Parental Aspiration	Job Certainty		
								Pre-test	Post-test	Change
10001	16,75	116	26	32	+6	3	1	7	3	+
10002F	16,75	101	39	36	-3	x	3	4	2	+
10003	16,92	96	39	33	-6	2	3	1	1	0
10004	18,0	88	40	42	+2	3	3	1	2	-
10005	17,58	105	38	34	-4	3	2	2	1	+
10006	16,50	115	37	30	-7	x	x	x	x	
10007	16,33	122	35	37	+2	3	2	4	5	-
10008	17,0	122	29	32	+3	1	3	5	4	+
10009	17,75	104	38	42	+4	4	1	5	5	0
10010F	16,08	141	41	44	+3	2	3	2	2	0
10011F	16,5	126	38	43	+5	2	3	2	7	-
10012	16,42	99	35	30	-5	3	1	1	1	0
10013F	16,42	125	40	39	-1	4	1	5	5	0
10014	16,75	112	33	39	+6	4	3	4	4	0
10015F	17,75	97	37	41	+4	4	3	2	1	+
10016	16,42	122	45	46	+1	2	3	1	1	0
10017F	16,83	140	44	37	-7	2	3	2	7	-
10018	16,33	133	34	40	+6	2	1	2	2	0
10019F	17,08	95	33	33	0	2	1	1	1	0
10020F	16,25	111	33	37	+4	3	2	4	3	+
10021F	17,42	113	35	29	-6	3	3	3	5	-
10022F	17,0	123	40	38	-2	3	3	3	6	-
10023F	16,25	120	39	38	-1	4	3	2	2	0
10024	16,66	107	40	38	-2	4	3	4	4	0
10025	17,92	121	31	23	-8	4	3	4	4	0
10026F	17,08	102	39	29	-10	5	3	3	3	0
10027F	16,5	119	36	37	+1	x	1	5	7	-

CLASS 9d

Identifying Code	Age	I.Q.	Pre-test Att.Score	Post-test Att.Score	Change in Att. Scores	Socio-Econ. Status	Parental Aspiration	Job Certainty		
								Pre-test	Post-test	Change
10101F	17,33	103	32	32	0	4	3	10	10	0
10102F	16,92	89	27	32	5	3	3	x	x	
10103F	16,08	122	38	36	-2	3	2	8	7	+
10104	16,75	92	36	28	-8	4	3	x	x	
10105	16,16	109	32	36	4	3	1	4	4	0
10106F	16,5	103	44	41	-3	2	3	1	1	0
10107	17,08	90	39	32	-7	4	3	4	5	-
10108F	16,66	110	39	40	1	3	2	3	6	-
10109	16,92	107	38	39	1	4	1	5	4	+
10110	16,66	117	40	45	5	4	3	2	2	0
10111F	16,75	113	33	37	4	4	3	4	4	0
10112F	15,75	116	31	35	4	3	3	7	3	+
10113F	16,5	115	39	42	3	4	2	5	5	0
10114	18,5	114	29	24	-5	6	2	7	7	0
10115	17,42	99	36	31	-5	3	1	1	3	-
10116	16,25	131	39	35	-4	3	2	1	1	0
10117F	17,0	118	38	33	-5	4	3	2	1	+
10118F	16,33	122	32	38	6	3	3	5	5	0
10119	16,5	118	35	32	-3	4	3	3	4	-
10120F	16,42	119	42	43	1	4	3	3	1	+
10121F	16,75	109	40	39	-1	2	3	5	5	0
10122	16,42	110	29	35	6	4	3	4	4	0
10123F	16,25	121	35	41	6	4	1	10	7	+
10124F	16,83	108	35	33	-2	6	1	3	3	0
10125	16,75	99	31	33	-2	5	3	5	5	0
10126	18,5	100	37	28	-9	3	3	2	4	-

APPENDIX NO. 2

'Program Benefit' Questionnaire Responses

Responses

Code	Question No.'s 1	2	3	4
10001	a	c	c	a
10002F	a	a	e	a
10003	a	b	c	a
10004	a	c	d	a
10005	a	c	d	a
10006	a	a	b	a
10007	a	d	c	a
10008	a	c	x	a
10009	a	c	x	a
10010F	b	f	c	a
10011F	a	a	c	a
10012	a	a	b	a
10013F	a	a	b	a
10014F	b	c	x	a
10015F	a	a	e	a
10016	a	a	e	a
10017F	a	d	d	a
10018	a	a	f	a
10019F	d	f	a	a
10020F	a	c	a	a
10021F	b	c	d	b
10022F	b	d	x	d
10023F	b	d	d	a
10024	a	c	d	a
10025	b	b	c	a
10026F	b	d	d	b
10027F	a	a	d	a

High School Personality Questionnaire Raw Scores (Form A) For Subjects in GROUP TWO

CODE NO.	FACTORS													
	A	B	C	D	E	F	G	H	I	J	O	Q_2	Q_3	Q_4
9d														
0101	10	8	10	10	5	12	12	11	10	7	8	11	11	7
0102	6	6	10	10	7	13	13	6	13	10	13	10	13	14
0103	12	8	10	11	11	14	11	9	8	8	9	6	10	10
0104	NOT AVAILABLE													
0105	11	6	9	12	6	8	10	7	7	10	8	14	6	14
0106	9	9	11	11	10	8	12	8	15	7	10	7	11	7
0107	11	6	12	11	13	8	12	3	11	6	12	10	16	10
0108	11	6	7	8	11	13	10	10	9	3	8	10	8	14
0109	16	9	14	14	18	18	13	15	3	5	8	7	8	6
0110	5	9	10	10	12	4	12	14	9	12	11	9	14	12
0111	4	10	6	18	12	14	10	9	14	18	10	14	8	13
0112	14	6	6	8	10	6	11	7	10	11	12	10	10	10
0113	14	8	12	9	9	8	13	8	10	11	8	12	11	12
0114	9	2	11	14	12	11	9	10	8	10	12	6	11	10
0115	12	6	17	6	13	10	12	11	10	14	12	11	11	11
0116	12	8	16	8	15	15	12	18	8	11	4	13	13	8
0117	13	9	12	14	12	12	9	7	13	9	11	10	15	11
0118	7	9	11	13	11	6	9	8	14	13	14	10	17	17
0119	13	8	7	12	11	13	10	7	10	7	17	10	5	10
0120	14	8	10	9	9	13	12	16	10	2	9	5	12	3
0121	10	8	10	7	14	13	9	9	9	10	10	8	6	12
0122	12	7	7	10	10	11	10	8	6	8	11	10	10	16
0123	6	8	9	12	13	6	10	5	10	8	15	12	14	11
0124	8	10	9	15	5	10	11	10	10	10	9	15	10	13
0125	9	7	9	10	5	8	9	5	10	5	14	8	5	13
0126	8	7	8	10	12	12	9	3	6	10	13	8	6	12

APPENDIX NO.2

High School Personality Questionnaire Raw Scores (Form A) For Subjects in GROUP TWO

CODE NO.	FACTORS													
	A	B	C	D	E	F	G	H	I	J	O	Q_2	Q_3	Q_4
9c														
0001	12	9	4	12	18	12	10	9	10	8	8	12	12	16
0002	2	9	8	16	9	5	10	2	14	16	7	15	12	11
0003	13	5	15	8	11	12	10	13	3	10	5	11	10	6
0004	10	8	14	13	12	7	13	12	4	5	10	10	10	11
0005	8	8	14	12	12	14	13	13	9	5	5	10	10	4
0006	NOT AVAILABLE													
0007	2	9	9	8	13	10	14	5	6	9	8	18	14	8
0008	5	7	13	6	9	10	15	9	10	4	11	10	13	8
0009	6	9	10	9	12	11	15	9	6	4	10	13	12	10
0010	6	6	10	12	8	7	9	8	17	8	12	12	16	10
0011	9	8	7	18	10	16	11	8	15	6	12	9	10	12
0012	10	7	7	12	10	12	4	9	12	10	10	8	12	12
0013	14	9	10	10	11	14	11	8	9	9	10	5	11	7
0014	7	6	5	10	11	11	7	9	10	12	14	8	9	12
0015	15	8	9	7	11	14	10	12	10	6	7	6	13	9
0016	4	9	11	8	10	13	10	12	8	9	11	12	9	9
0017	11	10	10	6	7	6	15	14	10	6	5	10	9	10
0018	8	8	11	8	7	9	10	11	9	8	7	9	10	9
0019	NOT AVAILABLE													
0020	9	7	8	11	12	5	14	10	12	7	11	10	11	10
0021	NOT AVAILABLE													
0022	NOT AVAILABLE													
0023	9	10	6	9	12	5	9	6	15	8	16	8	9	12
0024	11	7	12	13	14	12	9	14	5	7	8	11	11	7
0025	7	8	11	11	13	14	11	12	13	9	12	16	13	10
0026	12	6	2	8	10	10	11	5	9	4	12	10	3	16
0027	13	10	11	7	15	13	14	10	13	8	13	9	7	11

APPENDIX NO. 3

Raw Data for Group Three Subjects

Class E_4 (Standard Ten)

Code	Age (Years, Months)	I.Q.	Pre-test Attitude Scale Score
RBE41	17,58	118	39
RBE42	17,83	98	38
RBE43	17,58	130	43
RBE44	19,0	102	42
RBE45	18,83	109	39
RBE46	18,16	118	31
RBE47	18,42	103	37
RBE48	19,75	95	42
RBE49	17,75	105	41
RBE410	17,66	118	29
RBE411	18,0	131	40
RBE412	18,16	108	38
RBE413	17,75	109	42
RBE414	19,33	108	34
RBE415	17,33	117	38
RBE416	17,58	109	40
RBE417	18,5	111	37
RBE418	17,33	113	39
RBE419	18,08	101	39
RBE420	18,0	136	29
RBE421	18,0	107	35
RBE422	18,25	109	38
RBE423	17,58	125	45

APPENDIX NO. 3

Raw Data for Group Three Subjects

Class D_5 (Standard Nine)

Code	Age (Years,Months)	I.Q.	Pre-test Attitude Scale Score
RBD51	17,75	107	38
RBD52	16,75	123	38
RBD53	16,92	119	34
RBD54	17,42	97	33
RBD55	16,33	135	38
RBD56	16,5	129	38
RBD57	16,66	98	37
RBD58	16,5	111	24
RBD59	17,66	104	32
RBD510	16,75	107	34
RBD511	16,42	101	40
RBD512	16,83	120	33
RBD513	16,25	108	37
RBD514	16,58	103	38
RBD515	16,33	113	40
RBD516	16,42	128	33
RBD517	18,75	103	38
RBD518	16,25	121	36
RBD519	16,83	118	41
RBD520	16,83	108	30
RBD521	17,33	104	24
RBD522	16,25	129	41
RBD523	16,58	113	44
RBD524	16,25	111	35

APPENDIX NO. 4

ATTITUDE SCALE
AND
SCORING KEY FOR THE ATTITUDE SCALE OF THE CAREER MATURITY INVENTORY

Score one point for each of the following questions marked <u>True</u> :

No.'s 2
12
21
23
24
25
33

Score one point for all the rest marked <u>False</u>.

CAREER INVENTORY

NAME: _____

Directions:

Listed below are a number of statements about occupational choice and work. Read each statement and decide whether you agree with it or disagree with it. If you agree or mostly agree with the statement, blacken the circle in the column headed T on the separate answer sheet. If you disagree or mostly disagree with the statement, blacken the circle in the column headed F on the answer sheet. Be sure your marks are heavy and black. Erase completely any answer you wish to change.
ANSWER ALL THE QUESTIONS

1. Once you make an occupational choice, you can't make another one.
2. In making an occupational choice, you need to know what kind of person you are.
3. A person can do anything he wants as long as he tries hard.
4. Your occupation is important because it determines how much you can earn.
5. A consideration of what you are good at is more important than what you like in choosing an occupation.
6. Your parents probably know better than anybody which occupation you should enter.
7. Work is worthwhile mainly because it lets you buy the things you want.
8. Work is drudgery.
9. Why try to decide upon an occupation when the future is so uncertain.
10. It's probably just as easy to be successful in one occupation as it is in another.
11. By the time you are 15, you should have your mind pretty well made up about the occupation you intend to enter.
12. There are so many factors to consider in choosing an occupation, it is hard to make a decision.
13. You can't go very far wrong by following your parents' advice about which occupation to enter.
14. Working in an occupation is much like going to school.
15. The best thing to do is to try out several occupations, and then choose the one you like best.
16. There is only one occupation for each individual.
17. Whether you are interested in an occupation is not as important as whether you can do the work.
18. You get into an occupation mostly by chance.
19. It's who you know, not what you know, that's important in an occupation.
20. Choose an occupation which gives you a chance to help others.
21. Choose an occupation, then plan how to enter it.
22. Choose an occupation in which you can someday become famous.
23. If you have some doubts about what you want to do, ask your parents or friends for advice and suggestions.
24. Choose an occupation which allows you to do what you believe in.
25. The most important part of work is the pleasure which comes from doing it.

		T	F
26.	It doesn't matter which occupation you choose as long as it pays well.		
27.	As far as choosing an occupation is concerned, something will come along sooner or later.		
28.	Why worry about choosing an occupation when you don't have anything to say about it anyway.		
29.	I really can't find any occupation that has much appeal to me.		
30.	I have little or no idea of what working will be like.		
31.	When I am trying to study, I often find myself daydreaming about what it'll be like when I start working.		
32.	If I have to go into the military, I think I'll wait to choose an occupation until I'm out.		
33.	When it comes to choosing an occupation, I'll make up my own mind.		
34.	I want to really accomplish something in my work - to make a great discovery or earn lots of money or help a great number of people.		
35.	As long as I can remember I've known what I want to do.		
36.	I can't understand how some people can be so set about what they want to do.		
37.	The occupation I choose has to give me plenty of freedom to do what I want.		
38.	I know which occupation I want to enter, but I have difficulty in preparing myself for it.		
39.	I know very little about the requirements of occupations.		
40.	I want to continue my schooling, but I don't know what courses to take or which occupation to choose.		
41.	I spend a lot of time wishing I could do work that I know I cannot ever possibly do.		
42.	I'm not going to worry about choosing an occupation until I'm out of school.		
43.	If I can just help others in my work, I'll be happy.		
44.	I guess everybody has to go to work sooner or later, but I don't look forward to it.		
45.	I often daydream about what I want to be, but I really don't have an occupational choice.		
46.	The greatest appeal of an occupation to me is the opportunity it provides for getting ahead.		
47.	Everyone seems to tell me something different, until now I don't know which occupation to choose.		
48.	I have a pretty good idea of the occupation I want to enter, but I don't know how to go about it.		
49.	I plan to follow the occupation my parents suggest.		
50.	I seldom think about the occupation I want to enter.		

APPENDIX NO.5

PERSONAL QUESTIONNAIRE

IMPORTANT: All information given is treated in the strictest confidence and is used for research purposes only.

---

1. Your name: .....

2. Date of birth: .....

3. School and Standard: .....

4. Address: .....

5. Father's (or Mother's) occupation, (whichever is the main supporter of your family):..

   .....

   Briefly describe what he (she) does:

   .....

   .....

6. What level of education does the person referred to in the question above have? Mark one of the following as appropriate :-

   Below Matric ..... University degree .....

   Matric ..... Technical or business qualification .....

   Don't know .....

7. If either or both of your parents would like you to work at something in particular when you leave school, please write what it is. (Give details if possible).

   .....

   .....

   .....

   .....

   .....

   .....

PERSONAL QUESTIONNAIRE Section 2

FUTURE PLANS

Read the statements carefully. Tick and complete the statement which seems most appropriate to you.

Tick

1. I know exactly the job I want. It is .....

2. I have decided firmly what job I want, but would like some further information about it. It is .....

3. I had decided about the job I wanted, but am now less certain about it. It is .....

4. I know pretty well the kind of job I want, and am considering a number of similar alternatives. They are (in order of preference)

   (a)

   (b)

   (c)

5. I am very interested in a few different sorts of jobs. They are (in order of preference):-

   (a)

   (b)

   (c)

6. I have made a tentative choice of what sort of job I want, but am not very enthusiastic about it.

   It is .....

7. I have not yet decided what job I want, but I can describe roughly what I want. The main features are: (list them)

   (a)

   (b)

   (c)

   (d)

8. I am a long way from deciding what I am looking for in a job, but I know what I don't want.

   (a)

   (b)

   (c)

   (d)

9. The only job(s) that interests me I am unlikely to become qualified to get. It is (they are)

   (a)

   (b)

   (c)

10. I have no idea of what I want to do.

11. If none of these statements seems to fit your case, please describe what your position is.

    .....

    .....

    .....

    .....

CLASS:.....

YOUR NAME:.....

APPENDIX NO. 6
PROGRAM BENEFIT ASSESSMENT

Here are a few questions which will give you the opportunity to indicate whether you achieved anything of value from the program. Make quite sure you understand the questions before answering them. Then place a tick in the margin next to the appropriate statement.

1. Do you think you know more now about choosing a career than you did before you did the program?

a ___ (a) I know the same as I did before

b ___ (b) I've learned something but don't know if it is of any use to me

c ___ (c) I've learned something which I think will be useful to me

d ___ (d) I've learned a lot which I think will be useful to me

___ 2. Which part of the program do you think was the most useful to you?

a ___ (a) None of it

b ___ (b) The part on attitudes

c ___ (c) The part on interests

d ___ (d) The part on abilities

e ___ (e) The part on values

f ___ (f) The problems at the end

3. What do you think of the way the program was taught? (Tick more than one if you like)

___ (a) I thought it was well taught

___ (b) I thought it was badly taught

___ (c) I would have appreciated more class discussion

___ (d) I would have appreciated more notes and information to be given to us

___ (e) It was not at all clear to me

___ (f) I couldn't understand what attitudes and values are

4. Has the program made you change your mind about any career plans you were thinking of?

   (a) No
   (b) Has made me less certain
   (c) Has made me more certain
   (d) I'm thinking of something else now

If you answered (b) or (c), please say why._ _ _ _ _
If you answered (d), state what it is. _ _ _ _ _

5. If you would like to say anything which hasn't been covered above, please write it here. Your comments are valuable and are appreciated.

APPENDIX NO. 7

A CAREER EDUCATION PROGRAM

TEACHER'S INTRODUCTION

This program is designed to help your pupils develop their knowledge and attitudes towards establishing a career for themselves. It is not meant to make your pupils experts in vocational decision making. They are not expected to choose, once and for all, what they are going to do with themselves. They are rather expected to have good, sound reasons for any vocational choices they make and the understanding that a choice made now need not be final.

The guiding idea of this program is to develop your pupils' vocational maturity. Vocational maturity refers to attitudes that are held towards the process of establishing a career. So, for example, the boy who believes that he can achieve anything he wants to provided he tries hard enough has a less mature attitude than the boy who believes that his abilities, and not solely his determination, will influence his career success.

The first part of the program looks at attitudes and illustrates the value of a mature outlook. The vocationally mature person is seen as one who plans his career, who knows the value of self knowledge and how to use it, and who is realistic in his aspirations.

(Not every one of your pupils will be prepared to be realistic. In spite of all the sound advice you give and the knowledge they have, they will persist in making unwise choices. This is a function of personality and this program will not affect their personality growth. Maturity is a combination of knowledge and personality. Some people can benefit from knowledge and use it wisely, others cannot. If your pupils are reasonably well adjusted and mature, then they should benefit from this program.)

The next part of the program looks at three aspects of the self: interests, abilities and values. The influence of these on career choice

2/...

is illustrated. Finally, there are some illustrative problems which aim to integrate the program into a meaningful whole.

A note on teaching style

The aim of each section is set out for you, the teacher, to facilitate your control of the material.

Sections are written for you to present to the class, either in the words given or in your own manner. Class participation is essential for this program. Hints are given along the way for techniques you may use, but you are free to improvise and do what you feel best at.

Your class might like to note definitions and facts down on to paper. In the body of the text of this program you will find references to, for example, "Attitudes" sheet. These references refer to their own notes that they make on your directions.

INTRODUCTION TO THE PROGRAM (for the class)

For the teacher - Introduce the program to your class by outlining the purpose and the content.

e.g. "This program that we are going to do will help you develop a sensible approach to choosing a career. There are many different ways of doing this, but the best is an approach in which you plan ahead, one in which you get to know yourself and what you want and how to go about getting to where you want to be.

"We will start off by looking at attitudes towards work and careers and then have a look at interests, abilities and values. Finally, we will put all this information together and see what we have got out of it."

SECTION ONE - ATTITUDES

For the teacher - The important points to get across in the next section are what attitudes are and how they influence what we do. Without being too involved, an attitude can be thought of as a stance we take in relation to people, objects and relationships. An attitude is really the way we think about certain things, while a value (which you will deal with later) is the way we feel about things, i.e. it is more emotional.

Say, e.g., "We are starting by looking at attitudes. The Career Inventory you filled in was asking you questions about your attitudes. Let's have a look first at some examples of attitudes and then discuss the importance of attitudes. Here are two statements that you might have heard before:

'Immigrants are harmful to the country.'

'English speakers are better than Afrikaanes speakers.'

Some people actually believe those statements. They think about immigrants or language in certain ways. Similarly, you can think about your future in certain ways. You might think that it is best to do what your family wants you to do, or you might think that the future is so uncertain that there is no point in making elaborate plans now. These attitudes will influence what you do about your future career.

"(Stress this point.) If you have faulty attitudes, no amount of information about planning a career will be any use to you because your attitudes will prevent you from using this information properly. So we are going to now examine some attitudes towards work and careers."

(Hand out list of attitudinal statements to class.)

The following notes refer to the statements and will help you to analyse the attitudes these statements embody with your class.

Statement 1 reflects a lack of planning about the future. People who have such attitudes are leaving things to chance and are being very careless about their lives. Very few people ever achieved much through chance. Most of us have to work to get what we want.

Statement 2 - What is right for your father need not be the right thing for you. After all, fathers and sons are different people. You can by all means satisfy your father's wishes, but are you satisfying your own?

Statement 3 - There are lots of ways of earning money; being a doctor is not the only one. Also, being a doctor demands a lot from a person and you should be aware of this before plunging in. So this statement reflects a single-minded concern with money and ignores other aspects, such as one's personal suitability for the job.

For the teacher - Once you have discussed these statements with your class, showing them, where necessary, why they are not the best attitudes, go on with the next set of statements. You could split your class into groups, which collectively consider the choices they would make and then must give their answers. If groups disagree on the answers, then this disagreement will be a fruitful source of debate for the class. They must give reasons for their answers.

Most of the answers to the "career choices" statements should be clear. They are:

1. D	3. A	5. A	7. D
2. D	4. A	6. D	

6/...

The reasons are:

(1) The future needs to be considered now.

(2) Ability counts more than interest as far as being able to do the job goes.

(3) You will never be happy with somebody else's decision.

(4) One should always make contingency plans in case an unforeseen problem occurs.

(5) One can always benefit from wise guidance unless of course you are absolutely certain about your decisions.

(6) Many people come short because their ambition outstrips their ability. Far better to be realistic and get to know the limits of your ability, and then plan accordingly.

(7) The more information one has, the better are your chances of not making mistakes.

Summary of Section 1a

For the teacher - Attempt to get your class to summarise what you have just covered and state in their own words their ideas and criticisms of the material. Remember that you are trying to get them to examine their attitudes and modify them where necessary.

The important points are:

(1) Attitudes are the way we think about certain things.

(2) Attitudes influence our behaviour.

(3) As far as planning a career goes, the correct attitudes are:

  (a) Start thinking about the future now.

  (b) Examine various job alternatives.

  (c) Don't rely on somebody else to decide for you.

  (d) Get to know your abilities and limitations.

  (e) Be prepared to accept guidance from knowledgeable persons, in fact, seek it out if you are not certain.

  (f) Be prepared to modify your aspirations in accordance with your ability.

SECTION 1 B THE WORLD OF WORK

For the Teacher: The aim of this section is to get your class to consider why we work, what we get out of work and what we have to put into work. This is to produce realistic thinking about work since the change from school to work often requires considerable adjustment in attitudes about responsibility and self-discipline.
This section is short and should not take longer than 20 minutes or so to work through. Your class can make notes; this is advisable but not essential.

Say e.g. "Why do we work? Can someone offer various reasons for working?" (list these on board. The following are examples).

to earn money
to gain status, prestige, respect
to support a family
to support yourself

"Some people work because they have to. For them work is dull and boring. Others work because they find their work interesting and satisfying.
You can get many different kinds of satisfaction out of work. Here are some examples:"

You can: help other people
make things that people need
create artistic things
organise and direct people
travel
discover new facts
save lives

Ask your class to suggest jobs that can yield these satisfactions.

Say e.g. "Apart from getting various satisfactions out of work, work also makes demands of you. Can anybody suggest some work demands?

examples (a) travel around, sleep in hotels, stay away from home
(b) work shifts, irregular hours
(c) handle a lot of responsibility
(d) physically hard work, strenuous conditions

Ask class to suggest jobs that make these demands. Then ask : "Do you think you could be happy in work if the job demanded more from you than you are prepared to give?"

"So far we have discussed two areas of work, satisfaction and job demands. People get satisfaction out of their work basically because their values are satisfied. This we will look at later. The demands a job makes on you also determine your degree of satisfaction. So when you think of a possible job, it is helpful to ask what the job will demand of you.

"To summarise, let's think of what is important.

1) To be happy in our work, we must be satisfied with what we are doing. You might like to list some of these things for yourself.

2) Furthermore, we must consider what demands a job makes. Examples are responsibility, intelligence needed, abilities required, obligations, and whatever else you can think of.

SECTION 2 A INTERESTS

For the Teacher The object is for your class to start associating various kinds of interests with different work outlets. Remember that you are trying to get them to think in certain ways, not to learn a mass of factual material.

Say e.g. "Your interests have an influence on the satisfaction you get out of work. For instance, if you're keen on soccer and become a professional player, you're obviously going to be satisfied with your career. On the other hand, if you work in a bank and find that you haven't got the least interest in a banking career, you will be bored and probably wont last long in that job.
What about the person who says that he isn't interested in anything? How can he go about finding out what he might like to do? Any ideas?

(Hopefully you will get some answers. The ideas should cover the following:-

Interest testing - vocational guidance, reading books or magazines like 'My Career' and talking to people in various jobs to find out about these jobs. Generally speaking, to seek information).

Stress the following point Your interests are not the most important thing contributing to your choice of career. If you really cannot think of a thing you would like to do, don't panic. Get to know what different kinds of jobs are available and your interests will develop as you go along.

Say e.g. "To give you some idea of what jobs you can satisfy various interests in, we will discuss a few different areas."

(Your class can write the areas and examples down on their 'Interests' sheet, if you like)

AREAS	EXAMPLES
Mechanical	Engineering, technical work (e.g. electrician), pilot, diver
Scientific	Chemist or pharmacist, laboratory technician, doctor, meteorologist, surveyor
Artistic	Musician, painter, commercial artist, author
Social Service	Doctor, teacher, librarian,personnel manager, travel agent

Encourage your class to add other examples to these and even to think of different interest areas.

SUMMARY

1) Satisfying your interests in work can lead to job satisfaction.
2) If you have no specific interests that might suggest possible careers, then make enquiries from different sources so that you have some idea of potential careers.
3) Your interests are only one part of you that influences your career choice.

SECTION 2 B ABILITIES

For the Teacher The aim of this section is to get the class to become aware of the relationship between ability and work success. Quite a few young adults aim too high when planning their future. Others aim too low. This is generally because they are unclear about the relationship between ability and performance.

You can think of an ability simply as a facility you have in doing something, e.g. an ability in maths, an ability to organise people, an ability to concentrate for a long time. Ability refers to something you might be born with and also something you develop (this is a personality attribute).

Say e.g. "We are now going to look at abilities. Everyone has an ability in something or the other. (Ask class to offer definition of ability. They could write down the better definitions for their own use. If necessary, illustrate by referring to different areas in which abilities apply, e.g. mathematics, music, debating, sport, running a club, lying, writing stories, making things).

Say e.g. "Now, let's see what abilities different jobs require. What abilities do you think a salesman should have?
(Lead into short discussion. The abilities mentioned should be persuasiveness, tact, patience, taking a sincere interest in the customer, being able to express yourself clearly).
"An Accountant?" (intelligence, good with figures, capacity to work hard, long hours, good memory).
"A newspaper reporter?" (ability to think quickly, express himself well, work under pressure, not to get upset when insulted).

"What you might have noted is that each job requires different abilities although they might have some in common. Some of these abilities we are born with e.g. musical ability - most people can learn to play music, but some will be better than most because they are born with that extra little bit. Other abilities we develop as we grow.

Stress this point "You cannot do well in a job if you don't have the ability for it. You must start to find out what your abilities are now, and not wait till just before you have to make a decision.

Now let's see if we can decide what abilities other kinds of jobs need. (Elicit at least four different jobs that members of your class are thinking of doing. Choose them so that they represent different levels e.g. not all post-university jobs. Get the class to suggest abilities they think these jobs require. To help you, here is a list of ability categories and some examples of work.

CATEGORIES	EXAMPLES
mathematical-computational	engineers, computer operators, technicians, accountants
social (people oriented jobs, ability to respond to people)	personnel work, managers, salesmen, public relations
verbal and language	specifically with journalism, broadcasting, but more generally with any job that relies on good effective communication
creative	artistic work, film-making, photography, advertising, decorating, architecture

"What should you do if you are interested in a job but don't know what abilities are needed to do it? (Answers should indicate enquiry. Enquiry should be made of knowledgeable persons, either those doing the work, or guidance teachers or vocational psychologists, or by reading appropriate literature such as 'My Career', company handouts or whatever).

SUMMARY

1) Your abilities are related to your work success. If you don't have the ability the job requires, you won't be good at it.

2) You should start now to get to know what you are good at and what you cannot do.

3) You can find out about job abilities by enquiring of knowledgeable persons or reading appropriate literature.

SECTION 2 C VALUES AND NEEDS

For the Teacher Our values are responsible for the deepest feelings of satisfaction we have with our careers. If your values are satisfied in your work then, other things being equal, you are likely to be generally satisfied with your situation. So it is important for your pupils to become aware of their values and to take cognizance of the relationship between value satisfaction and work satisfaction.

Our values spring from our needs. We have basic needs, such as needs for food, shelter, and we have higher order needs, e.g. happiness, security. Your values are the degree of importance with which you regard each need, e.g. if you are asked to say which aspect of your work you consider more important, service to others or security, your values will determine what your answer will be.

This section aims at getting your class to be aware of some of the needs that people try to satisfy through work, and the importance of recognising their own values in determining the direction of their career. The general outline of needs and values are illustrated. The class is expected to provide most of the material for discussion.

Say e.g. "We are going to look at our needs and values now. You probably all have an idea of what a need is. Some examples are food, shelter, money, a motorbike, a surfboard. As far as work goes, though, we work not to buy a surfboard or a motorbike, but for more abstract reasons. Perhaps you can suggest some reasons why people work; what needs do people satisfy through working?
(Stimulate class to suggest needs and then focus onto the following five needs).

We work for money (we can buy things)
" " " status and prestige (so that people can admire us)
" " " security (so that we can live peacefully, not worrying about where the next job will come from)
" " " independence (so that we are not bossed around by others)
" " " to help other people (because for some this is a good thing to do)

"Now our values are simply those needs which are the most important to us. For the person who needs strongly to be admired and praised, his strongest value will be status and prestige. For the person who feels that money is more important than helping others, this will be his value.
What is important for you to know is that each person has his own set of values and he has to satisfy his needs according to his values in order to be happy.

Let's have a look now at a few typical jobs to see what needs can be satisfied in them.

A doctor? (class to suggest needs - money, status, security, independence, helping others)
A lawyer? (same needs)
A TV cameraman? (probably can satisfy needs for money. None of the other needs listed here are satisfied in this job, but the class may think of some which can be satisfied in this job, e.g. a need to be creative. Note that many interests can be satisfied in this job).

Say e.g. "You might have noticed that some jobs can satisfy more needs than other jobs can.
To illustrate how your values can influence your job choice, consider these problems. If you valued security highly, which job would you choose, a bank clerk or a commercial diver? If you valued independence highly would you choose to work as a surveyor in the field, where you are on your own, or as a surveyor back in the office where you have other people breathing down your neck?

Now ask the class to mention some of the jobs they are interested in and examine these in the light of their understanding of needs and values. In other words, analyse the jobs offered in terms of values being satisfied and needs being met. Suggest to your class that if they want to plan sensibly, they should think carefully about their needs and values when considering their careers.

SUMMARY As usual, attempt to get the class to stress the main points of this section. These are :-

1) Our most important needs are our values.

2) We can satisfy our needs and values through work.

3) If our values are satisfied, we are likely to be satisfied overall with our work situation.

4) Correct planning involves, too, considering our values and deciding how we can satisfy these.

SUMMARY

For the Teacher Before you list, on the board, the important points which have been covered, try to get your class to recall what these are. Systematically run through the sections, using the following notes as guides.

Attitudes influence our behaviour, and our thinking. The important attitudes in respect of career development are

1) Must plan ahead

2) Must know yourself, in terms of your interests, abilities and values

3) Must reach your own decisions

4) Must be aware of why you want to work

Interests contribute to our work satisfaction, but are not the most important factor to consider. Interests change and develop over time. If you have interests that can be satisfied through your work, that is good. If nothing interests you, then seek information and talk to knowledgeable persons who can help you.

Abilities are important in that each job requires an ability. If you have the ability the job requires, whatever it is, then you can do the work. If you don't have the ability, then you can't. Get to know what the job demands of you and then see if you match up to this.

Values and needs determine the direction of and satisfaction in your career. We work to satisfy needs of various sorts and the most important needs we have become our values. If your values, and therefore your needs, are not being satisfied through your work, you'll be unhappy.

SECTION 3 VOCATIONAL PROBLEMS

For the Teacher This section presents some simple problems which aim to integrate the information and principles which have been taught. Your class is not being tested. This they must clearly understand. These problems are an integral part of the program, and are part of the learning process.

Introduce this section in whatever way you like, but aim to stimulate the interest of your class. Each pupil should work individually and must be able to give reasons for his choice of answer. Disagreements can be discussed very fruitfully in the class. They must not take ages over each problem, but on the other hand, they should give thought to their answers.

Outline "This last section we are going to tackle consists of some problems which you will be able to answer correctly if you have understood what we have discussed in the program. This is not a test. It is a way for you to develop your skills in planning a career by means of actually solving some problems which are typical of people in your position.

Take about a maximum of 2 minutes on each problem on the sheet which has been handed out. Have a definite reason for your choice of answer. When you have finished, we'll discuss the answers."

Teacher In the discussion that follows, pick those boys whom you consider to be least intelligent and get them to give their reasons. This is advisable since your brighter boys will probably choose the correct answers while the duller ones might make errors, which will be your source material for discussion.

ANSWERS TO PROBLEMS

1. (b) Arthur's maths marks mean he will struggle at engineering and have a good chance of failing. By working now and travelling he'll mature and become clearer about what he wants to do.

2. (c) He benefits financially and gets a chance to sort himself out. He shouldn't do what he doesn't feel like doing, i.e. architecture, and visiting another psychologist is unlikely to help.

3. (c) Clive plays safe this way. His father is happy, Clive is earning money and has further educational opportunities. His abilities are not wasted.

4. (a) He gets good experience and the job allows him some freedom so his values are satisfied. If he sets himself up in business straight away, he has his independence but he is also placing himself at financial risk. He can always go into business later.

5. (b) This is probably the best choice. Eddy is likely to be good as a salesman (remember his social ability) and will therefore earn good money (satisfying his need to do well). As an articled clerk he is likely to fail as his ability is only average. If he enters the business, he won't be happy because that is not what interests him.

6. (b) This seems to be the best alternative for Frank as he can still satisfy his need to help other people, and he may be more successful in social science.

7. This is the most difficult problem of the set. There is no 'best' answer here. Your class must reach their own conclusions on this one.

VOCATIONAL CHOICE PROBLEMS

1. Arthur's dad wants him to go to university and study a technical degree, like engineering, because he thinks this will be a good qualification. Arthur's maths is only average (52% in the last exam) and he would prefer to work now and travel a bit, and then settle down to something. What would be the best thing for Arthur to do?

   (a) Follow dad's wishes
   (b) Follow his own wishes

2. Bert didn't have a clue what he wanted to do when he finished school. He visited a vocational psychologist, who tested him and told him that he was good with figures, was creative and enjoyed dealing with people. He suggested architecture as a possible career. Bert thought about this and felt he still wasn't sure about what to do. Which of the following alternatives seems the best?

   (a) Follow the guidance of the psychologist
   (b) Visit another psychologist
   (c) Do an extended period of military service thereby getting a large cash bonus and the opportunity to mature and think about what he wants to do

3. Clive's parents never had educational opportunities. Neither has a matric. Clive's dad, a plumber, believes hard work counts more than education and wants Clive to do an apprenticeship in a trade when he leaves school. Clive is bright and his guidance teacher has urged him to study further. Clive's dad is dead against his going to university, even though Clive could get a bursary; he believes Clive will become a drug addict. Which of the following is the best alternative?

   (a) Clive applies for a bursary and antagonises his father

(b)/....

3. contd;.

(b) Clive does an apprenticeship, starts earning money as soon as he leaves school, but wastes his potential

(c) Clive joins the Post Office as a trainee engineer, with the opportunity to go to university later on, at Government expense, if he is considered good enough

4. Derek, who is keen on photography, has his own darkroom, which he has equipped with money he worked for. He dislikes authority and his school thinks he is a rebel. His schoolwork has always been average. Which plan seems best for Derek?

(a) Join a newspaper as a photographer

(b) Set up his own business as a photographer

(c) Take a safe, secure job as a bank clerk

5. Eddy's family is in business and it is taken for granted that Eddy will take over the business one day. Eddy is good at sport and is a good socialiser and organiser. His academic work is only average. Frankly, Eddy is not that keen on going into business although he does want to do well at work. His family have contacts and can get him articled as an accountant. What should Eddy do?

(a) Become articled

(b) Become a salesman

(c) Enter the business as a trainee manager and study through correspondence

6. Frank has set his heart on being a doctor since he feels deeply that he wants to help people. He tried really hard at school but his marks were not good enough to gain him entrance into the Medical faculty. He entered the Science faculty instead, hoping to get into Medicine with science subjects and a good university record. He failed two out of four subjects and the Faculty adviser suggested that Frank change his courses as he was not coping well. Which of the following alternatives is the best one?

   (a) Change to easier courses and try to complete a B.Sc. degree?

   (b) Change to the Social Science Faculty and study to become a social worker?

   (c) Continue with his objective of trying to enter the Medical Faculty?

7. Garth is a reliable person and a neat worker who is a bit above average in his school work. He likes to read a lot, is a quiet person and does not have many friends. Two companies are prepared to employ him. The one job is as a technical sales representative. This job provides on-the-job training, starting at R 190 per month. Promotion is on merit only. The other job is as a trainee supervisor with an insurance company, also with on-the-job training, at R160 per month. This job is more secure, has good fringe benefits but promotion depends a lot on length of service and not so much on merit. Which job would suit Garth best? Give reasons for your choice.

CAREER ATTITUDES

1. I'm not worrying about a job now, the future will sort itself out.

2. I am going to do engineering because that is what my father wants me to do.

3. I want to become a doctor because they earn a lot of money.

CAREER CHOICES

1. It is not important to think about my future career now as the future is still far away. AGREE/DISAGREE

2. Being very interested in a job matters more than whether you have the ability to do it. AGREE/DISAGREE

3. Deciding for myself is better than doing what somebody else wants me to do. AGREE/DISAGREE

4. Having alternative jobs in mind when planning a career is good thinking. AGREE/DISAGREE

5. One should discuss your future plans with someone who has experience and knowledge in these matters. AGREE/DISAGREE

6. It is good to aim really high, even if you think that you haven't got the ability. AGREE/DISAGREE

7. The person who doesn't bother to find out details about various occupations is likely to make as good a job choice as the person who does explore alternatives. AGREE/DISAGREE