DECISION STYLE, ABILITY AND THE EFFECTIVENESS OF A CAREERS INTERVENTION.

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ABSTRACT

This study aimed to evaluate the impact of a career decision-making exercise on decision-making skills in groups with different academic ability and career decision style. The study was conducted in a single sex female school using four classes (90 students in total) of Fourth Formers. Three separate phases were carried out within a two week period as part of the careers program. Phase one involved pretesting students using measures of knowledge of sources of careers information and actions to be used when making a careers decision. Career decision style, logical reasoning and demographic details were also obtained at this stage. During phase two students were either taught a specific decision-making exercise (Experimental intervention) or an exercise on women in the workforce (Placebo intervention). The final phase involved a post test and follow up career exercises. Results were analysed using 2 x 2 x 2 x 2 (type of intervention, career decision style, academic ability and pre/post test) way ANOVAs for each dependent measure. The group exposed to the career decision-making exercise did not show the predicted improved performance over those exposed to the placebo intervention. Gains were evident in the knowledge of career information sources but this was the same for both interventions. Academic ability and career decision style did influence the intervention outcomes but not in the predicted directions. Results are discussed in terms of the adequacy of the measures of career decision-making skills and the unexpected impact of the placebo activity. The importance of taking into account decision style and academic ability in designing careers interventions is high-lighted.

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CHAPTER ONE - INTRODUCTION

1.1 Psychological Decision Theory

Decision making involves the selection of a course of action from a number of available alternatives and may be considered from both psychological and economic viewpoints. Economic theorists since Jeremy Bentham (1748-1832) have attempted to predict consumers choices along with a variety of other investment related decisions.

Jepsen and Dilley (1974) suggested that a decision-making conceptual framework assumes the presence of a decision maker, who uses information from both the person and from the environment, within a decision situation. The decision maker considers two or more alternative actions, assesses their outcomes in terms of the probability of their occurence and their value and finally makes a commitment to a single choice. While all decision theory is based on these elements, emphasis tends to vary according to the type of decision being considered.

Edwards (1954, 1961) in an early examination of decision making, concluded that economic theorists tended to focus on the idea of the subjective value or utility of the alternatives under consideration. The decision maker was also assumed to behave rationally showing a weakly ordered preference for the alternatives. This transitivity of preference (i.e. if A is preferred to B, B is preferred to C it should follow that A is preferred to C) however, has not always been demonstrated in later studies (Edwards 1961), and emphasis is shifting to stochastic models which explore dynamic change in both the environment and decision maker (Thoresen and Mehrens, 1967). Thus models such as Edwards (1954, 1961) assume choice will be made by maximising the expected utility, and mathematical formulae may be used to calculate this.

In an application of decision theory based on an assumption of rationality Vroom (1961) proposed the concepts of Valence, Expectancy and Force in two related cognitive decision models. The first, the valance model, suggests that the value of an outcome depends on the anticipated satisfaction to be gained from it and whether this outcome will lead to other desired outcomes, (instrumentality). This valence model is frequently used to predict occupational preference (Mitchell & Beach, 1976).

The second aspect suggested by Vroom is known as a Choice model, and predicts the force to perform a behaviour. The focus of the Choice, model is an expectancy, defined as the belief the individual has that the behaviour being examined will be followed by the desired outcome. This expectancy is an action - outcome association, whereas instrumentality is an outcome - outcome association. Thus force, a product of valence and expectancy, controls which alternatives the decision maker chooses in order to maximise his or her gains. The force model has been related to occupational choice.

In examining the results of studies using Vroom's model, Mitchell and Beach (1976) concluded that there was substantial support for the expectancy model. Studies (Holmstrom and Beach, 1973 and Muchinsky and Fitch, 1975) have correlated subjective expected utilities with students' occupational preference ratings and obtained values of 0.83 and 0.84 (mean correlations).

Huber, Daneshgar and Ford (1971) explored the use of a weighted expected utility model (probilities replaced by an index of importance of the outcome to the decision maker) to predict which job teachers would accept if offered a choice of placements. The model allowed 60% correct prediction of the job chosen. Such models can therefore provide an explicit way in which information, values and future

expectations are evaluated and combined to enable the individual to arrive at a personal 'best' choice.

Other studies dispute the idea of maximising gains fundamental to probability-utility theories. Simon (1959) suggested that not all decision making is achieved using a planned rational course of action. Due to man's limited ability Simon suggests the decision maker tends to construct simplified models of reality in order to deal with complex situations. This leads to the choice of the first satisfactory alternative with no further consideration of alternatives. This idea of 'satisficing' also suggests a lowering of goals, when much searching fails to reveal a suitable choice.

Soelberg (1967) refined this idea further and proposed that in order to simplify the decision process the individual uses a 'favourite' alternative as a standard against which to assess other alternatives. Such a 'validator' searches through all the alternatives only until two suitable ones are defined. A final choice is then made using these alternatives without considering other alternatives. Research (Gluek, 1974) supports these differing search strategies and suggests "maximisers" use the most rational and "Satisficers" the least rational strategies, still within a utility-probability framework.

Most of the above models fail to incorporate external influences on the decision maker. One that does can be seen in the work of Fishbein and Ajzen (1975, 1980) who provide a model that can be applied specifically to vocational decision-making. In 1967 Fishbein proposed a 'theory of reasoned action' in order to predict and understand an individual's behaviour, with the focus on the intention to perform as being the determinant of the action following.

This determinant has two component parts. The first is the individuals attitude toward the behaviour and the second is the persons perception of the social pressure upon him or her to behave in such a way. This latter 'subjective norm' is the element not included in the decision theories previously mentioned. These two elements, attitude toward the act and subjective norm, are weighted relative to each other and according to the intention under consideration. It should be noted that the attitude is toward an intended behaviour rather than an object or target.

Ajzen and Fishbein (1980) also emphasise that their theory identifies a small set of psychological concepts which help to account for relationships between external variables such as age, sex, social class and race, and any kind of volitionally controlled behaviours. The idea of incorporating the influence of 'others' with the individual's actions, expectances and probability of outcome, provides a broader framework within which to consider decision making in vocational choice.

In an effort to test the model Sperber (in Ajzen and Fishbein, 1980) empirically studied teenage girls intentions to choose between a career lifestyle and a homemaking lifestyle. The result of this study showed the decision to be primarily based on judgements regarding the arguments for and against the alternative lifestyles, that is their attitude towards the behaviours of career-making or homemaking. The influence of social pressure on the intention to chose depended on the consensus of the pressure. When significant others all clearly favoured an alternative this was usually the one chosen. If social pressure was conflicting this 'subjective norm' had a weak influence on the final choice intention.

This study highlights the potential influence of others, such as parents and school guidance counsellors on the choice of career. These influences must be examined when considering styles of career decision making.

This section has discussed general decision theories with an emphasis on those such as Vroom (1964) and Fishbein and Ajzen (1975, 1980) which can be applied to occupational decision-making.

A discussion of decision theories specifically designed to apply to career decision-making follows.

1.2 Decision Theory Specific to Vocational Choice

The process of preparing for education and work throughout life is called vocational development. Within such development it is assumed many decisions will be made by the individual in pursuit of short and long term vocational goals. General psychological decision theory and theories of vocational development have influenced the emergence of vocational decision models. Sime and White (1976) suggest such models may be classified into, those which are prescriptive of behaviour, such as normative probability - utility theory, and those which are descriptive of the vocational decision process.

Many prescriptive models of career decision-making have been proposed. Katz (1966) suggests a practical method of aiding career decision makers to explore and examine their own values. This approach does not help the decision maker list many alternative action plans. Instead a few options are studied in depth. The decision-maker's values are related to options and the values are then weighted in terms of importance. For each option the sum of the relevant values weighted by importance is then multiplied by the probability of the decision maker's success and an expected value calculated. The recommended option is that for which the expected value is highest. While this model is prescriptive of the action necessary at the point of a career decision, it does not consider the full decision process.

A conceptual model which does focus on the process of decision making was developed by Gelatt (1962). The model assumes that guidance in decision-making should aim for the use of 'good' decision strategies, as well as successful outcomes. Information is the focal point and is considered to fall into three systems. The Predictive system looks at alternative actions and the probabilities of particular outcomes. The relative preference for outcomes is considered

under the Value system and the rules for choosing fall into the Criterion system. Gelatt (1962) suggests that with adequate information in each system, optimum conditions exist for successful decision-making. However no specific rules are given for the process of linking the three systems into a decision strategy. This model implies that the improvement of information sources and the use of the information gained will lead to better decisions (Clarke et al 1965), without specifying the way in which the information should be utilised. It therefore provides a prescriptive model for information search but not for information integration.

Kaldor and Zytowski (1969) also derive their career decision model from economic probability theory. They suggest that a career choice is determined by the strength of the decision-makers preference, the quality of the inputs (information resources) and the consequences that are anticipated for each alternative output. The individual is assumed to be aiming for the greatest gain, when balancing input costs against output gains. Alternatives are discarded when their net value is not as positive as expected and the career decision-maker maximises the net gain among the remaining alternatives. This view is supported by Katz (1966) and Hershenson and Roth (1966).

These models assume that the decision-maker uses rational strategies and has access to unlimited information (Jepsen and Dilley 1974). Descriptive vocational decision models however do not make such assumptions as they try to describe the decision process that people 'naturally' follow. There are fewer theories which fit this category. Although Hiltons (1962) model, based on complex information processing mechanisms does fit, only Tiedeman and O'Hara's (1963) model of stages will be enlarged on here. This latter model is chosen as it can incorporate decision-making style, a variable of key importance in the present study.

Tiedeman (1961) and Tiedeman and O'Hara (1963) presented a paradigm in which career development was seen to consist of linked decisions, each of which was approached using a set of ordered stages. These stages were categorised into a period of anticipation or clarification of the decision problem, and a time of implementation and adjustment which occurred after the moment of choice. Although stages are treated as discrete, changes between stages are actually gradual. This means that one stage tends to dominate, but advance and retreat between stages is possible.

Within the anticipation period (from problem definition to moment of choice) there are four conceptual stages. In Exploration the decision-maker defines the vocational problem creates goals and imaginatively explores the fields surrounding them. Crystallization, the next stage, is when goals are ordered, according to their value to the decision-maker, although further 'exploration' still occurs. At the stage of Choice a decision is made following whatever strategies the decision-maker uses to choose between career alternatives. These strategies may vary on a continuum from emotive to rational. Finally Specification provides an inactive period for the consolidation of information surrounding the choice, and a time for dissipating doubts as to its 'correctness' for the individual.

The second period is that of implementation and involves a further three stages. Induction is when the decision-maker faces the reality of the choice as he or she begins to implement it, and this is closely followed by a time of Transition when adjustment to the outcomes engender confidence in the decision. The final stage it that of Maintenance, a condition of dynamic equilibrium, when the decision-maker adapts to any influences impinging on his or her decision.

Overall the Tiedeman-O'Hara paradigm considers both the steps leading up to and following the choice point. Research into the theory has tended to concentrate on the Anticipation period and while it is generally supportive (Jepsen and Grave 1981) the theory needs to be stated more explicitly and measures operationally defined. As a theory of decision-making it has advantages in that its descriptive nature allows it to incorporate external variables that influence career decision-making. It also does not assume rational decision-making strategies or limitless information sources, as do, some of the models already mentioned. Thus the influence of the decision-makers career decision style (i.e. rational or non rational) on organising career and personal information can be examined as a factor in making effective career decisions.

Recently Krumboltz, Mitchell and Jones (1978) presented a model relating social learning theory to career decision making. Krumboltz et al (1978) consider the influence of a combination of factors such as genetic endowment, performance skills, environmental conditions, cognitive and emotional responses and learning experiences on the individual in making a career choice. The model is descriptive, treating career selection as a life long process with numerous decision points linked by period of personal growth and influenced by the factors mentioned above. It could provide a broad conceptual framework incorporating the other types of vocational decision models at the decision points.

None of the vocational decision models discussed above offer a complete framework for career decision-making. The models tend to complement one another and there is a need for a more comprehensive 'working' framework to provide guidance for career decision-making. In an attempt to provide such a 'working' framework elements of some of the models mentioned (Gelatt, 1962, Kaldor and Zytowski 1969, Tiedeman, 1961 and Krumboltz et al, 1978) will be combined for this study.

The focal idea of decision style will therefore be examined within a 'working' career decision-making structure.

1.3 Decision Style

A common assumption in the theories concerning vocational decision-making is that the behaviour necessary to achieve success must include logical-rational thought and explicit rule following (Baumgardner 1976, Hesketh 1982, Pitz & Harren 1980), This suggests one type of decision style. However in a study classifying career decision behaviour, Arroba (1977) isolated six styles of decision-making.

'Style' can be viewed as descriptive of the decision-maker generally or of the behaviour specific to a particular decision. Arroba chose to define style as descriptive of specific behaviour in a particular decision situation. The decision-maker was viewed as having a repertoire of behavioural styles available for use in different situations. The six styles indentified in Arroba's(1977) study were:

1, Logical
2, No thought
3, Hesitant
4, Emotional
5, Complaint
6, Intuitive.

The study found that the style used varied according to the amount of control the decision-maker had and the importance of the decision. For example when making a voluntary career choice which the decision-maker classifies as very important a Logical decision style is favoured.

Other researchers have examined some facets of decision style in relation to vocational choice. Using Arroba's six categories in a longitudinal study, Hesketh (1982) considered the active-passive dimension of style in relation to the outcome of choice. The results suggested that an active logical decision style was related to the later effective implementation of plans. However Hesketh (1982) stresses that the study did not adequately control for

ability in Maths and Sciences, which was also related to successful implementation of plans. Future research needs to examine the relationship between style and outcomes, controlling for ability. In the present study ability was controlled when examining the impact of style on outcomes.

Baumgardner (1976) viewed decision style as falling on a continuum from an analytic/rational style to an intuitive/ reflective style. The 'hard' academic areas (such as the natural sciences and engineering) facilitated the analytical mode and the 'soft' academic studies (such as humanities and social sciences) the intuitive mode. Studies by Baumgardner (1976) of college students found that those with high intuitive scores changed majors more often than analytical students.

When examining vocational decision-making strategies used by adolescents, Jepsen (1974) found 12 different styles being used, which appeared to relate to the stages in a vocational decision model such as that of Tiedeman and O'Hara (1963). There was a development of style from an intuitive style in exploratory stages towards rational styles for the implementation of a decision.

Armstrong (1981) examined the effect of career decision style used by adults returning to school, on the success of a change in career direction. Two distinct career decision styles were isolated. When the decision-maker based their 'school return' decision on both limited alternative choices and little accompanying information, the style was called incremental as further information could modify it. The second, rational style,utilized a broad base of both information and alternatives. The main impetus was to select an 'optimal alternative' to affect 'irreversable major career change'. (Armstrong, 1981, p.206). In the same study it was found that if a rational decision style was used for such career change, returning to school was a successful way to implement the decision.

In an attempt to relate decision style to the process of career decision choice, Harren (1979) incorporated it into his career decision-making model for college students, which will now be explored.

Harren (1966) chose the first four stages of Tiedeman and O'Hara's vocational decision-making paradigm as a basis from which to examine vocational choice as a process within college students. In 1979, Harren extended the Tiedeman and O'Hara model to incorporate external and internal influences into the process of career decision making by college students.

Harren's (1979) model suggests four interrelated parameters; Process, Charactistics, Tasks and Conditions. The Process parameter covers the process of the career decision choice from the awareness stage through to the implementation of the final choice.Characteristics include self concept and career decision style. Within Tasks parameter are given the tasks of autonomy, interpersonal maturity and sense of purpose which are all appropriate to late adolescence. The final parameter covers Conditions such as interpersonal evaluations (positive and negative feedback from others), Psychological states (e.g. anxiety levels), Task conditions (i.e. immanence of decision, alternative choices and consequences for choice) and Context conditions (role of significant others relative to the decision). For the purposes of this study only that part of the 'Characteristics' aspect of the model, that relates directly to hypotheses to be examined will be considered in depth.

Two major individual characteristics are postulated to affect the career decision process. The first, self concept, refers to the individuals attitudes or traits implicated in a vocational decision. This self concept has an evaluative element called self esteem and a differential/integral element, identity. A highly differentiated self concept means the individual has a strong sense of 'who one is' and experiences satisfaction with this self knowledge. The second decision-maker characteristic is decision-making style. Harren (1979) defines this as the manner in which the individual interprets and responds to decision-making tasks.

To arrive at definitions for variations of style Harren adapted a classification developed by Drinklage (1969) to assess the styles students used in educational, vocational and personal decision-making.

Originally Drinklage (1969) proposed eight styles; planning, intuitive, compliant, fatalistic, impulsive, delaying, agonizing and paralytic. Only planning and intuitive styles were found to lead to effective career decisions (Miller and Tiedeman, 1972). Different styles were used by males and females. Style also varied according to the type of school attended and the context of the decision (i.e. educational, vocational or personal). (Drinklage, 1969).

Harren *1975) collapsed these eight styles into three categories based upon the degree of personal responsibility the decision-maker assumes for choice outcomes, and the degree of rational (as opposed to emotional) strategies employed in the decision process. The three styles were labelled: Rational, Intuitive and Dependent. These styles can be related to Arroba's (1977) six styles which also fell on similar dimensions.

The Rational career decision style was originally known as a planning style. The decision-maker using this style accepts the consequences of decisions which are viewed as links in a chain of choices extending forward in time. Information about self and the situational elements of the decision is gathered and reviewed through a logical sequence before a decision is reached. The effectiveness of the decision is dependent on the degree of realism of the information obtained. A rational style is seen as the ideal for the decision maker as it provides them with perceived control of their future.

As with a rational career decision style the Intuitive decision maker also accepts responsibility for actions and/or decisional outcomes but does not use logical, information seeking and ordering behaviour. The intuitive decision-maker uses fantasy and an awareness of emotional feelings as a basis for a rapid choice between alternative actions. The individual may not be able to say why a particular course of action was chosen, aside from saying that it 'felt right!'. Due to variations in emotional states and the difficulties of accurately representing the unfamiliar in personal fantasy, this style may not always lead to effective decision-making.

In contrast to the above styles Dependent career decision makers deny personal responsibility for their decisions and project responsibility away from themselves. Those using this style are influenced by the desires and expectations of others and they tend to be passive and compliant with high social approval needs. Using this style, the dependent career decision-maker can reduce immediate decision-making anxiety but does not gain the personal satisfaction typically expressed by rational and intuitive decision-makers.

As the assumption of Harren's (1979) career decision model is that progress through the stages of the decision-making process depends on the characteristics of the decision-maker, the type of decision involved and the decision-making context, it can be seen that style will be relevant at all stages of each career decision. Each decision-maker approaches career choices differently according to his or her style, and interventions by counsellors may need to take into account individual differences in preference for style.

Research is continuing into the effects career decision style has on career choice and extensive use is being made of Harren's (1980) measure of career decision style - the Assessment of Career Decision Making (A.C.D.M.). In reviewing the literature using Harrens A.C.D.M. attention will focus on

those studies relevant to present research. As decision style may influence or be influenced by external aspects, such as academic ability and socio-economic status a framework incorporating these elements will be proposed, but a comprehensive and integrated test of the proposed model is beyond the scope of this thesis.

1.4 Career Decision Style and Other Influences on Career Decision-Making

Harrens early work on the ACDM supported Drinklage (1969) who found gender related differences in the use of decision style. However, recent research (Lunneborg, 1976, Harren et al 1978, Moreland et al 1979 and Harren et al 1979) examining gender differences in career decision style revealed no detectable favouring of one style by either sex. Lunneborg (1976) found no difference between the sexes in three studies using highschool juniors, on either career decision style or the career stages given in Tiedeman and O'Hara's (1963) paradigm. This result throws into doubt the need for differential career counselling for the sexes.

Harren et al (1978) went a step further and examined the effect of sex role attitudes and career decision-making style on the decision process. Their results supported the following casual inferences: gender influences sex role attitudes; sex role attitudes in conjunction with career decision styles influence the decision-making process; and these influence the decision-makers satisfaction with the choice of major. As they also found those students with a rational career decision-making style more effective in making career choices, this study suggests that the assessment of style used and the development of a rational style, as being important in counselling for career decision-making.

Moreland et al (1979) found that while gender alone was unimportant, there was a direct effect of the sex role concept on students' progress towards choosing college majors and career choice. This sex role self concept also had a direct relationship to the use of a rational career decision style for men and to both intuitive and rational career decision styles for women. While these results tend to favour differential counselling, based on an estimate of sex role self concept, it should be noted that this variable only accounted for between 2% and 16% of total variance.

The above studies suggest indirect gender influences on the decision style used. In the present study only females were used to control for possible gender effects.

The relationship of career decision-making to academic achievement, vocational maturity, and external social variables has been researched by Phillips and Strohmer (1982, 1983). Findings suggest that college students who score highly on a measure of vocational maturity, are successful academically, and use either a rational or intuitive career decision style (Phillips and Strohmer 1982). However Phillips and Strohmer (1983) in a survey of disabled and disadvantaged college students found that academic level, decision style, childhood experiences and disability had very little relationship to the level of vocational maturity attained.

In another study using Harrens ACDM, Berger-Gross (1983) included a measure of non specific anxiety which was shown to inhibit effective career decision-making. It was suggested that anxiety increases as a result of thinking about career planning. Less anxious students were found to use rational style more often and to express more commitment to an occupation, suggesting a relationship between state anxiety and a students success in career planning. The question does arise as to whether decision style contributes to state anxiety or vice versa. It may also be that anxiety acts indirectly on the career decision process with career decision style mediating this influence.

Finally in a study by Jepsen and Prediger (1981) the ACDM was one of seven measures used to assess adolescent career development. In the study four orthogonal factors were identified and labelled: Cognitive resources for decision making; decision making style; systematic involvement in career decision-making and decision-making stage or certainty.

Correlations between ACDM style categories and all other factors were low and the authors suggest style is an independent part of career decision-making.

The use of a rational decision style implies an ability to plan and reason in the logical manner suggested by Piaget (1972) when describing the formal operations stage of reasoning. It has been suggested that there is little consistency in the age when this occurs and some adults may not ever reach such a level (McKinney et al. 1977). Studies have been carried out, mainly with college students (Schwebel 1975), which suggest that by late adolescence over 50% are able to reason with some formal operational logic. Thus students of 14 - 15 years could be expected to formulate a hypothesis from what is possible and deduce the consequences that it implies in a way that is independent of the intrinsic falseness or truth of its premises (Flavell 1977). This formal reasoning process (Piaget 1972) can be seen as an integral part of successful career decision-making particularly as implied by stepwise career development theories (Tiedeman and O'Hara 1963).

It has been suggested that the growth of such formal logic, with independence from the reality content of an argument, is partially dependent on the socialisation of the adolescent. (Piaget 1972). As Schwebel (1975) found a low relationship between logical reasoning and academic criterion for women in late adolescent some measure of the level of formal operations for the subjects in this research was appropriate, to provide a check on the stage of cognitive development reached.

Besides academic ability and formal reasoning stage, socio-economic status (SES) has been suggested as affecting career decision-making (Gottfredson, 1981). Some studies correlate academic achievement with SES (Lawrence and Brown 1976 MacKay and Miller, 1982 and White, 1982) in the field of career choice. In order to consider the effect of the family on forming a career-decision style, socio-economic status for each subject was included.

From the reported research using the A.C.D.M. as a measure of career decision style it is evident that work in the area is increasing slowly. Studies by Harren (1978), Moreland et al (1979) and Phillips and Strohmer(1982,1983) suggest that career decision-making style combines with other factors to influence the career decision-making process. In the current study which considers the influence of decision style on the effectiveness of a career decision-making exercise, within the secondary school setting, other influences (academic achievement and the family circumstances) are also considered.

As no existing career decision model incorporated these factors into one unit, a vocational decision framework that combined elements of other models (Katz 1966; Gelatt 1962, Krumboltz et al 1978) was formulated. Figure 1 shows the framework. It is not intended to cover all possible influences affecting the career decision process, but rather highlight the interaction between some major factors.

VOCATIONAL DECISION MODEL

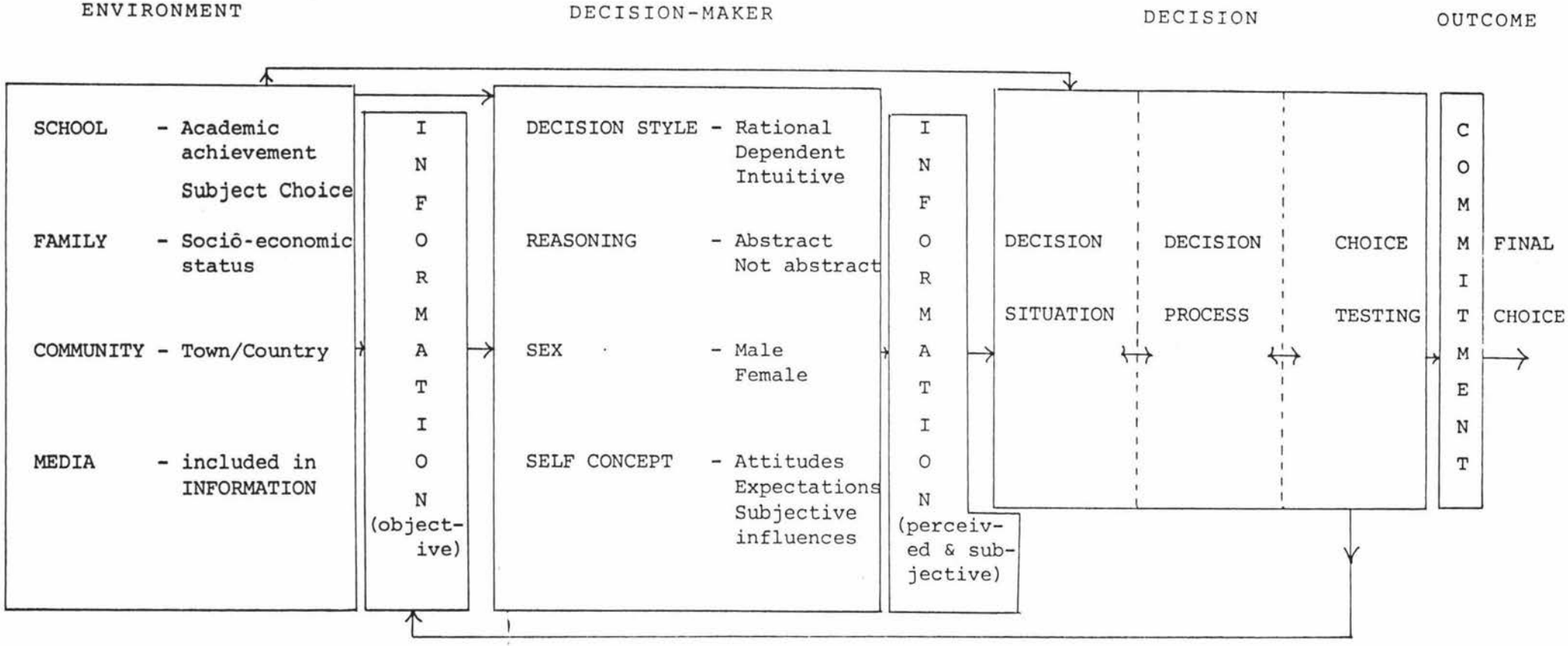

Fig. 1: Showing a model for the vocational decision-making process with linking arrows to show the directional flow of the process.

The framework has four elements - the environment, the decision-maker,the decision and the outcome. Within each element a number of facets are high-lighted.

The Environmental influences (suggested by Social Learning Theory as it relates to career choice (Krumboltz et al 1978))include, the school (represented by school subject choice and academic achievement), the family (for this study taken as Socio-economic status), and the community (resident in a town or country environment).

A factor stemming from the emphasis Gelatt (1962) places on information, which acts rather like a filter, is the objective information necessary for the decision-maker to make an informed decision. This information may be gained directly from the media (written and visual material) or, indirectly from life experiences in the family, in interaction with the local community. As a factor in the decision process it is therefore placed between the elements of the environment and the decision-maker as it impinges on both.

The element of the decision-maker has many facets. While four are included here only three will be used in this study. Decision style (Harren 1980), as already described in a previous chapter, has three categories - from Rational, through Intuitive to Dependent. The reasoning facet may be classified as abstract or not abstract (Piaget, 1972). Both feminė and masculine aspects are given (this study controlled for differences by using only female subjects). Finally self concept which is based on both Harrens (1979) definition and Ajzen and Fishbeins (1975, 1980) model of reasoned action, is seen to include attitudes, expectations and subjective influences. Self concept will not be examined further in this study.

Before the decision process can occur the decision-maker integrates all the information obtained which is influenced by both internal and external factors. Thus the information carried into the decision element is what the decision-maker preceives. In other words the information is personalised and becomes subjective rather than objective. This can be seen as another filter prior to the decision-making process.

The final two elements of the framework were evolved from the models of Gelatt (1962), Katz (1966) and Kaldor and Zytowski (1969) and cover the decision process. The Decision incorporates the decision situation, the decision process (that is strategies for using information to create alternative action plans) and choice testing (where outcomes are examined and weighted according to their probability of occurrence and value to the decision-maker).

The last element, Outcome, involves commitment by the decider to one course of action which will lead to implementation of the final vocational choice.

The arrows on the model indicate the direction of the decision process and the loop between Decision and Information (objective) emphasises the repetitive nature of the testing of alternative courses of action before a commitment is made to a single career plan.

The main focus of this study, career decision style, can be viewed, using the above framework, in relation to both the external influences (Environment), internal criteria (Decision-maker), the decision process (in this case an exercise to improve decision skills) and the outcome (an increase in the knowledge of information sources and actions used in career decision-making).

1.5 Vocational Interventions

Vocational counselling traditionally involves a counsellor and a client. Careers interventions need not be restricted to this format and there are many alternative treatments. The computer can be used as an information source or interactive 'counsellor', and vocational exercises may be explored in groups. For the purpose of this study research on group vocational interventions, especially those relating to the career decision-making process will be examined.

Such interventions commonly occur in schools and colleges as a career education programme. This career education does however differ between countries. In Britain the focus is on the point of actual career decision, while in the United States teaching of a broader career curriculum over a longer time span within different class subjects is the norm (Watts and Harr, 1976). Evaluations of such schools career guidance programmes and specific vocational interventions often lack adequate experimental control and accurate criterion measures (Watts and Kid, 1978 and Pickering and Vacc, 1984), and the results of such evaluations require careful interpretation.

From the research Holland, Magoon and Spokane (1981) found four treatment factors that underly effective vocational interventions. These are (i) exposure to occupational information (ii) cognitive review of career alternatives, (iii) cognitive organisation of information about self and occupations, and (iv) support or reinforcement from others (i.e. teacher or counsellor).By reexamining through meta-analysis 52 studies of vocational interventions, Spokane and Oliver (1983) found that generally effects were beneficial. Class or group interventions were more effective than those for individuals although further research in the area of alternative forms of career intervention is needed. This review placed emphasis on the importance of relating the treatment to outcome goals. For purposes of evaluation the issue of measuring outcome goals is vital.

In many studies, as in the present study, the outcome goal was an improvement in the effectiveness of the subjects career decision-making techniques which included knowledge about careers and where to find such information. One possible measure of these outcomes is provided by the equivalent forms of one of the tests in the New Mexico Battery (Healy and Klein, 1973) which is divided into scales for Decision Sources and Decision Actions. This allows the information component to be examined separately from the career decision process. Other possible measures such as the career Development Inventory (Super et al, 1981) are biased toward specific career development theory and career maturity constructs. Most measures examined placed more emphasis on ability and interests than on sociological or economic influences. (Healy, 1984). Studies focussing on evaluation of interventions aimed at teaching career decision-making will be reviewed in more detail.

A number of such studies have been carried out. These findings provide general support for teaching career decision-making skills in order to encourage effective career choice. Glaize and Myrick (1984) found that both small group work and computer guidance equally increased students' ability to clarify career goals and raised their career maturity levels. Berman et al (1977) using a community or university based supportive learning environment also found similar increases in career maturity from teaching career skills. Other interventions which successfully increased career decision skills as measured by Decision-making Checklists, included interactive computer use combined with counselling interviews (Cochran et al 1977) and video taped counselling combined with both individual and group counselling. Using both a measure of career maturity and of behaviour(requests for career information), Jepsen et al (1982) demonstrated gains on both these measures after behavioural exploration careers with field trips. These studies serve to emphasise the variety of styles of intervention possible.

Many of the studies of interventions have been carried out with college students. Career courses tend to run for a semester and involve both individual and group exploratory or counselling sessions. Group work with students of this age is particulary effective in increasing career decision-making skills (Evans and Rector, 1978, Johnston et al, 1981 and Krumboltz et al, 1982). Laskin and Palmo (1983) ran high school programs to increase decision-making skills and develop students' personal indentity images. The outcomes as gauged by a career maturity measure, were particularly successful when the program was tailored to students needs. Standardised programs were less successful, a result supported by Tinsley et al (1984).

Krumboltz and Rude et al (1982) investigated the idea of good and bad strategies for decision-making. A values guided search was more productive than a general search for students. This idea was extended to emphasise the importance of teaching career decision-making as a set of skills, so as to encourage the use of effective strategies, especially when a counsellor was not available.

In 1978 Egner and Jackson developed a careers program for college students designed to increase career maturity, the effectiveness of career decision-making and encourage the seeking of career information. Results showed that non academic students showed the greatest gains in decision-making skills while academic students gained more on the career maturity measure. The programme was therefore generally effective but a ceiling effect was shown by academic students of high ability who had high scores initially and therefore made minimal gains in career decision-making skills. Slower learners in other studies (Perrone and Kyle, 1975, Baker and Popowice, 1983) also showed more increase in general careers activities than other students.

In a study by Evans and Cody (1969) school students were found to employ more effective decision-making strategies when directed practice was used in the teaching of career decision skills. The dependent variable was a criterion defined as, the transfer of a learned career strategy into differing career choice situations, and its successful fulfilment was established by a panel of judges. Results indicated learning differences between oral and written practise which were difficult to attribute to a particular aspect of the intervention. It should be noted that in contrast to previous research the actual process of career decision-making (as separated from the collection of information relevant to the decision) was being studied.

A comparison, mentioned earlier, of different methods of teaching career decision skills would seem to favour groups interventions (Spokane and Oliver, 1983). Wachowiak (1972) in a study of group programmes and individual counselling towards choice of college students, found that students in groups showed greater increases in ratings of certainty toward subject choices, than those of either the control (no intervention) group or individuals receiving personal counselling.

In a similar study Smith and Evans (1973) used both Decision-making checklists and counsellor assessment of increased career information seeking activity to evaluate the teaching of decision skills. Group intervention was more effective than individual counselling for decision making, or no intervention.

Only a few studies really consider career decision style as it relates to the decision process. In a review Baumgardner (1977) stated that because career planning and choice seemed to involve a mixture of rational and non rational reasoning styles, perhaps the career decision process should be conceptualised as a quasi-rational procedure. Thus the appropriate career decision process may depend on the goals of the individual and the influences of the environment calling for the use of a variety of decision styles by each decision-maker. Baumgardner (1977) also sees systematic planning as creating order among career realities where it

does not exist. No research has yet been carried out to test this assumption of 'quasi' rationality.

Sarnoff and Remer (1982) used guided imagery as a way of generating career alternatives and classified subjects according to Harrens Career decision styles. Rational thinkers generated more useful career alternatives than did subjects with dependent or intuitive career decision styles. Barker (1981) assessed a "Career Planning and Decision-making for College" course for increases in the use of Rational career decision style for career decision-making. The researchers tried to locate more specifically where improvement in the process of career decision-making occurred but found significant improvements only in knowledge of occupational information and identifying career information sources. The present study also assessed these two aspects of the career decision process as a dependent variable.

In a study of students who used Rational career decision style, Phillips and Strohmer (1983) found that this style assisted their progress past the exploratory stage of the career choice process. Other students without such a rational career decision style spent an excess of time and effort on early pre choice areas of career decision-making.

The final study by Rubinton (1980) raises the idea of teaching students career decision-making skills using interventions suited to their dominant career decision style. Measures of both career maturity and certainty of vocational choice showed that rational decision-makers gained most from a rational intervention and those with intuitive decision style found an intuitive intervention effective. Dependent decision-makers showed no gains for any of the interventions and this style was considered an ineffective method of making successful career choices.

From the research it would appear that career decision-making interventions may be affected by the ability and decision style of the decision-maker. There is a suggestion that an intervention emphasising rational decision style works well for those who already use this style but not necessarily for those using other styles. Thus the present study using an intervention assuming rationality of style examines its relative effectiveness for individuals with different styles.

1.6 Objectives and Hypotheses

The major objective of the study was to assess the effectiveness of a career decision-making intervention in increasing students decision-making skills and to explore what factors were associated with the success or otherwise of such a careers program.

The first hypothesis examined the effect of the careers intervention generally as follows:

Hypothesis I

"Students who receive a career education program which emphasises decision-making skills, will show greater improvement in their knowledge about both Sources of information and the Actions to follow in making a decision, than will students whose Career education program does not deal specifically with decision-making."

Career decision-style is suggested as one influence on career decision-making interventions which could alter the effectiveness of the intervention (Rubinton, 1980). As the career interventions used in this study were both designed to be rational/logical teaching units the second hypothesis aimed to test the effectiveness of the intervention for rational decision-makers.

Hypothesis II

"Students with a Rational career decision style will benefit more from career decision-making skills training, than students with other decision styles."

While little mention of academic ability is made in the research some part of the effectiveness of career interventions may relate to this variable and this was assessed by the third hypothesis in two parts. The ceiling effect (Egner and Jackson

1978) for those with higher academic ability tends to suggest that greater gains will be obtained among low ability students. Because of the limited research directly relevant to this aspect of the present study these hypotheses are stated with caution.

Hypothesis III

"(i) Students with a low level of academic ability will benefit more from career decision-making skills training than students with higher academic ability regardless of career decision style.
(ii) Students with a Rational decision-making style and low academic ability will benefit more from career decision-making skills training than those with low academic ability and other styles."

CHAPTER TWO - METHOD

2.1 Subjects

Subjects were drawn from 4th Form students attending a girls high school with a roll of 900. As part of the Social Studies syllabus, a unit concerning careers was scheduled during the 4th Form year, and those classes covering this section, prior to August 1984, took part in the study. Of a total of 205 4th Form students only 109 were able to participate as a fifth class was retimetabled to have Social Studies careers exercises after August 1984. Of the 109 subjects, 90 sets of data were used in statistical tests. Attrition of subjects was mainly due to absence from school during part of the four teaching/testing sessions (13 students). Missing information such as school test scores (6 subjects) also contributed to this dropout.

Class teachers for the four participant classes were advised of the nature of the study (an exercise in career decision-making and women at work) and volunteered their classes. Three teachers elected to observe the sessions. The final sample used had a wide range of academic ability with 31 classed as very able, 29 average and 30 below average (Reid et al, 1981). There were two 'unstreamed' classes (48 students) and two 'streamed' classes (one high and one low). The students' ages ranged from 13 years 7 months to 15 years and 2 months. Prior to the session no students had covered any material in the Social Studies program specifically related to career decision-making.

Students came from a wide variety of backgrounds. Country girls accounted for 23% of the sample, the other 77% being from urban centres. One third of the mothers were fully employed, one third worked part-time and one third were homemakers. Fathers generally were fully employed (96%) with 42% having high, 50% medium and 8% having low socio-economic status (Elly and Irving, 1976). Similarly 22% of working mothers had jobs of high socio-economic status, 68% medium socio-economic status and 10% were classified as being low socio-economic status jobs.

(Irving and Elley, 1977). Among mothers who were homemakers 27% had been previously employed in jobs of low socio-economic status which was a higher proportion than for currently working parents. Overall 40% of the students' families could be classed as of high socio-economic status which is not representative of the general population of girls in this age group. However it is representative of the bias towards high socio-economic status in the participating girls school.

The range of school subject options was wide, including commercial (23%), home science/art/typing (34%) and languages (43%). All students took four 'core' subjects - mathematics, English, general science and social studies.

2.2 Experimental Materials

2.2.1 Career Decision-making Training Exercise

The career decision-making exercise employed as the treatment for the study was based on the type of careers units currently taught in New Zealand schools. Exercises were selected from Vocational Guidance leaflets designed for high school usage, and combined in a booklet (see Appendix M for a copy of "Career Planning and Decision Making").

The booklet was designed to be self explanatory but not self teaching. Class discussion, group discussion or individual tutoring was necessary to ensure that learners followed instructions correctly. Students wrote answers to questions in the individual booklets. Diagrams and cartoons were used in the booklets to hold subjects attention and reinforce the concepts being taught.

After the section teaching decision-making skills in a general way, a specific decision exercise involving a teenage student was described showing the steps needed for a successful career decision. The final section of the booklet then allowed each student to set their own problem and try to solve it using the same step wise method. Finally participants were stimulated into thinking about why one makes such reasoned decisions.

2.2.2. Control Training Exercise - Women in Work

As a control or placebo condition, a careers exercise covering aspects of work specifically related to women, was designed. The exercises in this booklet were also drawn from existing careers programs. (CRAC - see Jones et al, 1976) and contained no elements directly related to the stepwise career decision-making process. (See Appendix N for a copy of the booklet "Women in Work").

The booklet used the same format as that concerning decision-making. Full use was made of pictoral reinforcement and diagrams or charts. Answers were to be written in spaces provided, and teacher guidance or group discussion was necessary to adequately teach the content.

The overall theme of the unit was an examination of the changing role of women in the workforce. Emphasis was given to both similarities and differences between 'men's' and 'women's' work. Reasons for disproportionate numbers of men in 'top' jobs were investigated.

The final aspect of the exercise encouraged participants to examine their own feelings as young women soon to enter the work force compared with general social expectations for them as women.

2.2.3 Logical Problem Solving Measure

A test of abstract reasoning ability (Roache, 1973) presented as a series of syllogisms which could be true or false, was administered to students before the teaching units. This test was included in the test booklet, and as students were expected to assess all 24 syllogisms for truth, it was untimed. (see Appendix L for a copy of "Logical Problem Solving" which is included in the Test Booklet).

The 24 syllogisms are divided into 3 categories:

(1) Symbolic - here letters were used rather than familiar concepts for the arguments. (7 items).

(2) Familiar - familiar concepts related to everyday occurences were used so that reasoning of the arguments fitted with commonly held beliefs. (9 items).

(3) Biased - these concepts were familiar but the truth of the arguments was unusual and often against commonly held belief. (8 items).

Each item scored one if correct.

The syllogism test was selected for both ease of administration (tests of logic often require individual administration and the use of equipment) and the availability of results from its use with Massey University students (a New Zealand sample). See Appendix A for a table of error scores from recent usage of the test.

With limited information on the internal consistency of the individual scales and the test as a whole, reliability checks were carried out using the data from the present study. See Appendix A for this information. On the results of this analysis the total correct score was used rather than the three subscale scores.

2.2.4 Measures of Academic Ability

A measure of academic ability was obtained for each student from school records. The school had administered both the Test of Scholastic Abilities (TOSCA) (Reid et al, 1981) and the Progressive Achievement Tests (P.A.T.) of Reading Vocabulary, Reading Comprehension and Mathematics to the subjects in 1983.

The TOSCA is a group test with 70 questions (both multi-choice and completion) and was administered within the 30 minute time limit.

The secondary level Form A (12.6 years to 14.11 years according to norms) was used and scores recorded as percentiles. According to Reid et al (1981) the reliability values for split-half and Kuder Richardson are 0.93 and 0.92 for this test level.

TOSCA is normed for New Zealand students and has high correlations .80 to .92 with the Otis Intermediate B which was commonly used as an instrument measuring academic attainment. Doubts have recently been cast on the test as an unbiased measure of scholastic abilities. Appendix B discusses the controversy surrounding TOSCA.

Correlations between TOSCA and the PAT tests are high ($r=.75$, $p < 0.001$) for subjects in this study (See Appendix B). However as the correlation between the PAT (Verbal) and PAT (Maths) is also at $r=.68$ to .79, some question as to the dependence of the mathematical concepts measured on reading or verbal ability can be raised. This puts accuracy of PAT Tests and TOSCA as measures of mathematical competence in doubt.

2.2.5 Measure of Career Decision Style

The Assessment of Career Decision Making (ACDM) (Harren, 1976) was chosen as a measure of decision style for career related decisions. This instrument is an extension of an earlier measure, the Vocational Decision Making Checklist (VDMC) developed by Harren (1976) to empirically test elements of the Tiedeman and O'Hara's (1963) vocational decision-making paradigm.

In its original Q-sort format the VDMC was used in a number of studies. (Harren, 1976, Lunneborg, 1978, Miller and Tiedeman, 1972) but subjects found it difficult to follow the Q-sort directions and a simple checklist format was devised. Both these forms of the instrument focused mainly on the Exploration, Crystallization, Choice and Clarification stages of the Tiedeman and O'Hara paradigm.

Two of the parts of the instrument assess the process of making a choice of occupation or choice of a subject to major in at college. The part used in this study related only to the determination of career decision styles. (see Appendix L for a copy of "How Do I Make Decisions").

The scale consisted of 30 items. Each item could be agreed with or not according to the respondent way of reaching decisions. No time limit was imposed for responding to all items. There were 10 items for each scale (Rational, Intuitive, and Dependent) ordered in multiples of three for each style. As previous usage of this instrument was with college students questions 7 and 29 had their wording altered to clarify the meaning for the 14 year old students in this study.

Tests of reliability for Harren's scale carried out on the present sample compared favourably with those found in previous research. Alpha reliabilities were .68 for Rational (compared with .72 to .81 from previous studies) and .70 for Dependent (compared with .69 to .82 in other research). The Intuitive

scale was lower at .53 but still could be favourably compared with a range of .60 to .67 in past research. A full discussion can be read in Appendix C.

The number of students using each of the three styles differed from that found in American studies. Harren et al (1978) found similar proportions of subjects in Rational (39%) and Intuitive (36%) with lesser numbers showing Dependent (24%) style. In this study 64% of the sample were classed Rational, 25% Intuitive and only 11% Independent. This could be due to cultural and/or school differences between New Zealand and the United States. Despite this difference the test appeared well suited in its adapted form for New Zealand 4th Form girls who were the subjects in the present study.

2.2.6 Socio Economic Index

The calculation of socio-economic status was made using the Elley-Irving Socio-Economic indices (1976, 1977). Each student was therefore asked to fill in a section entitled Biographical Information (see Appendix L which was the final page of the Test Booklet).

Students were asked to record their fathers and mothers occupations and whether they were employed full time. If the mothers occupation was homemaker then their last known employment was to be recorded. Each occupation was then coded according to the Elley-Irving (1976) index for fathers and the Irving-Elley (1977) index for mothers. An overall index was calculated by taking the highest individual SES score where both parents were fully employed and the SES score for the full time working parent where one parent was employed part-time or was a homemaker. The SES categories with examples are:

High SES:

1. Professional : Lawyers, Dentists, Teachers
2. Managerial : Managers and types of businessmen
3. White-Collar : Clerks, Agents service occupations and farmers.
4. Skilled : Trades people
5. Semi-skilled : Storemen, machine operators, Barbers, Postmen

LOW SES

6. Unskilled : Packers, labourers, scrubcutters, cleaners.

A separate category included for this study was that of homemaker. The above categories are based on both income and education required for the job according to the New Zealand Census

While this measure of SES is simple and tends to use occupational groupings rather than individuals it has been shown by a recent study (Fergusson and Norwood, 1979) to be a valid measure, for use in research. Problems similar to those suggested by Buttle (1981) were found in using the index. As not all occupations appear some occupations had to be assigned

levels according to the rater's own ideas of the job, introducing possible bias. Other jobs had ambiguous titles or did not appear under a commonly used title which also permitted erroneous coding. Some jobs such as typist/clerk with combined duties would have had two levels according to the scale.

Finally some occupations are unpaid (voluntary counselling) or 'paid in kind' (farmers wife, general homemaker) and can not be coded by this index. These last occupations are seen as "an integral part of mens contribution to the process of production" (Gray, 1981, p.38) and must surely contribute accordingly to the S.E.S. of the family concerned.

2.2.7 School Subject Choice Index and Other Independent Measures

While all respondents took four core school subjects including Mathematics, General Science, English and Social Studies, it was decided to determine any logical/mathematical orientation in the choice of optional school subject which could be related to rational decision style. Hesketh (1982) used a composite score from 0 (Taking no maths or science) to 5 (obtaining 80% + in either School Certificate Maths or School Certificate Science). As no results were available for the optional subjects an alternative system was devised. for exploratory use. The scale is as follows:

Subject	Score
Typing	0
Art, Clothing	1
Design for Living, Shorthand	2
French, German, Latin, Home Economics	3
Music	4
Economics, Tech Drawing	5

With two school subject options a maximum score of 10 (High Maths) and a minimum of 1 (Low maths) were possible. A score of three often indicated a concentration of languages. Two other independent measures taken were the age of respondents and whether they lived in town or country areas. (See Appendix L for the Biographical Information included in the Test Booklet).

2.2.8 Dependent Measures - Planning Tests

Two dependent measures were obtained for each student. Both measures derive from the New Mexico Career Education Test Series (Healy and Klein, 1973). The first measure (pre-test) used Form B of the New Mexico Planning Test and the second measure (post-test) Form A of this test. (See Appendix L for copies of the pre-test which was included in the Test Booklet and Appendix O for a copy of the post-test called Career Planning Test).

The New Mexico Career Education Test Series were designed to assess specific learner objectives in the area of career education for high school students. Two of the seven criterion referenced tests were chosen. These were equivlent forms purporting to assess whether the student is able to make appropriate decisions about preparing for and selecting an occupation. The 20 questions on each test were further divided into subcategories. Odd numbered items examined knowledge of information sources to consult for occupational information. Even numbered items look at the actions to be taken in making a career decision. The multi-choice questions centred on scenarios involving students making career decisions.

As the Planning tests were evolved for American students, changes to suit the New Zealand situation were made. For details see Appendix D. This action was taken as no other test which would assess knowledge of career information sources or career decision actions in New Zealand school students was available. The New Mexico Tests were written for students of similar age, had a set of parallel tests, assessed the factors being examined and appeared to be suited to adaption for New Zealand students.

Reliabilities for both the overall scale and subscales (Information Sources and Actions) were calculated using students in the present study and compared with those in the Test Manual. Overall scale values were $\alpha = 0.49$ (pre-test) and $\alpha = 0.59$ (Post-test) which are lower than the Manual values of $\alpha = 0.69$ and .64 respectively. Correlation between pre and post-test forms was $r_{90} = .36$, $p < 0.001$. When the measure was divided into the subscales, reliabilities were found to be further eroded: Information Sources $\alpha = .39$ (pre); .44 (Post)
Actions $\alpha = .35$ (pre); .36 (Post)

The low reliabilities obtained from the dependent measure in the present study must be borne in mind when examining the results. This issue will be raised again in the discussion. As an indication of the low reliability was obtained during the study an additional dependent measure the Decision-making Test, was used with the final group of students.

2.2.9 Dependent Measure - Decision-Making Test

As there was some doubt following preliminary analysis of initial data that the planning tests were adequate dependent measures of the change for the particular type of decision unit being taught, the final experimental group was also administered on open-ended career decision-making problem. (see Appendix P for copy of this instrument).

The instrument was scored by three raters according to four categories (See Appendix R for a copy of rating form and notes). (1) Problem Definition (2) Sources of information indicated (3) Whether more than one alternative solution was generated and (4) What action was suggested to reach this goal. Each rater was also asked to assess the subjects decision style using definitions given. Two of the raters were independent and not aware of the particular treatment for this group.

2.3 Procedure

2.3.1 Pilot Test of Instruments

A small pilot sample of students were given the test instruments and also asked to read the instructional booklets. As a result the booklets were modified to ensure understanding by students and to assess the number of sessions needed to complete each unit.

2.3.2. Design Schedule

Three Experimental classes (Numbering 17,30 and 31 students) and one control/placebo class (31 students) participated in these sessions. Order of their participation was according to their social studies program timetable. Randomising assignment of classes to the conditions was not suitable, as two classes were 'streamed' into high and low academic ability and had to be treated according to these class groupings. It was decided to assign these classes plus one of average academic ability to the experimental condition and treat the other average class available as a control/placebo condition group.

Tables 1 and 2 show the order of sessions for each group and the time elapsing between sessions. The total time elapsed for each class varied from 7 to 13 days for teaching both the career units. It should be noted that the time elapsed between Session Three and the Post-test Session was held as constant as possible. All groups had one session for pre-testing, two sessions for either Decision-making/Women in Work, and the post-test came at the beginning of the fourth session. A fifth follow up session was taken by the class teacher after this study was completed.

It has been suggested by Quay (1977) that it is important to describe carefully the intervention being evaluated in any outcome research. Without such a description it is impossible to know what has been evaluated, or what it is that can be classed as successful or not. A full description of the particular approach used in teaching the units is contained in Appendix E.

Table 1: Showing Schedule for the four sessions across the groups with time elapsed between sessions in days.

SESSIONS

GROUPS		1-2	2-3	3-4	Total Time Elapsed
EXPERIMENTAL	Gp 1	2	1	5	8
	Gp 2	5	2	5	12
	Gp 3	1	1	5	7
CONTROL	Gp 4	6	1	6	13

Table 2: Table showing the sequence for teaching and testing units.

SESSIONS

	1	2	3	4		Treat-ment
Group 1	Pre-Test	Decision Making	Decision Making	Posttest	Women in Work	Expt
Group 2	Pre-Test	Decision Making	Decision Making	Posttest	Women in Work	Expt
Group 4	Pre-Test	Women in Work	Women in Work	Posttest	Decision Making	Contro
Group 3	Pre-Test	Decision Making	Decision Making	Posttest and Decision Question	Women in Work	Expt

CHAPTER THREE - RESULTS

3.0 Design and Analysis Overview

The study was undertaken in three stages. The initial stage established the style of career decision-making which subjects used, and the level they had attained in career decision-making skills and knowledge of information sources. The second stage was the presentation of a unit covering either career decision-making skills (experimental intervention) or information about women in the workforce (placebo activity). The final stage assessed the relative impact of the intervention, and placebo conditions. The experimental design was a five factor mixed block design (2x2x2x2x2) with repeated measures on the last two factors. The factors were; treatment group (experimental vs placebo), career decision style (Rational versus other styles), scholastic ability (as assessed by the Test of Scholastic Ability - TOSCA - High versus Low), strength of decision-making skills (as measured by pre and post-test assessment) in two subscales (knowledge concerning decision-making Information Sources and/or decision-making Actions.

Due to the small numbers having Intuitive or Dependent career decision styles, these styles were compressed into the 'other' part of the block for the second factor. The third factor, TOSCA, was blocked with subjects having scores greater than 50 being classified high and subjects with scores less than 50 being classified low. The operational definition of the dependent variables Sources and Actions is included in the procedure section.

Three school classes comprised the experimental group and one further class formed the control group. After obtaining pre-test information on the planning scales, the experimental group participated in the career decision-making skills exercise while the control group undertook a "placebo" activity aimed at imparting information about women at work. Both groups were assessed in the final stage on an equivalent form test.

(assessing knowledge of Sources and Actions) to that used for pre-testing. As both intervention and placebo conditions were part of the school career program, both groups then participated in a follow-up teaching session where the careers unit not already encountered was taught.

The analysis of the data was by means of ANOVA to examine Hypotheses 1, 2 and 3 (as detailed on page 30) with subsequent decomposition of interactions relevent to the particular hypothesis. The use of weighted means in the ANOVA's was not felt appropriate, as the unequal sample size (see Procedure - Subjects) was not related to the experimental treatments. This coupled with the magnitude of difference in sample size justified the use of unweighted means solutions in the analysis. For full discussion of this issue see Keppel (1982).

The data analysis and test of all hypotheses concerning differences in the level of response on the Sources and Actions scales was initially guided by the results of a 5-way ANOVA (see Appendix F for Summary ANOVA Table).

The finding of a significant interaction between the type of subscale (Sources versus Actions) and the pre-tests and post-test ($F_{1,82}$= 15.72, $p < 0.001$) justified separate analysis of data received from the Sources and Actions scales. Additionally the significant main effect for the type of subscale (Sources versus Actions) ($F_{1,82}$= 50.81, $p < 0.001$) also supported treating the responses from each type of scale separately. Consequently two separate 4-way ANOVA's were used to examine the results for the two scale types: Sources and Actions (see Appendix G).

In two separate one way ANOVA's (see Appendix J) no significant differences were found when comparing the average scores on the scales from the three classes allocated to the experimental condition with those of the class in the control condition for both Pre-test measures (Sources $F_{1,88}$=2.138,p = 0.1 and Actions, $F_{1,88}$ = 0.048, p = 0.827.. For all subsequent analysis the scores for the three classes in the experimental condition were combined.

3.1 Hypothesis I

Two 4-way ANOVA's (Treatment x Decision style x Scholastic ability (TOSCA) x Pre-test/Post-test) were examined for each of the Sources and Actions scales. Appendix G provides a summary ANOVA for Sources and Actions (Tables 6 and 7).

No significant main effect was found for treatment groups on either scale (Sources, $F_{1,82} = 0.90$, $p > 0.05$ and Actions, $F_{1,82} = 0.02$, $p > 0.05$).

The main effect for pre versus post-test was only significant for the Sources scale, $F_{1,82} = 14.17$, $p < 0.001$. The parallel effect for the Actions scale was not significant, $F_{1,82} = 1.41$, $p > 0.05$.

Neither of the interactions important to the test of the first hypothesis (i.e. Groups x pre-test) were significant. (Sources: $F_{1,82} = 1.05$, $p > 0.05$; Actions $F_{1,82} = 0.63$, $p > 0.05$). The means for pre-test and post-test scores for each treatment group are graphed in Figure 2. The increase in scores for the Sources scale and the decrease for the Actions scale can be seen for both treatments. Because of their importance for the first hypothesis some pairwise comparisons were completed. (Keppel, 1982).

As noted, on average both groups together showed significant gains for the Sources subscale. The increase for the control group was significant, ($F_{1,88} = 9.74$, $p < 0.01$) and this pairwise comparison was also significant for the experimental group ($F_{1,88} = 6.482$, $p < 0.025$).

On average both groups decreased on the Action scale scores but the overall F was not significant. Further decomposition showed neither of the pair wise comparisons to be significant. (Control $F_{1,88} = 0.047$, $p > 0.05$; Experimental $F_{1,88} = 0.657$, $p > 0.05$)

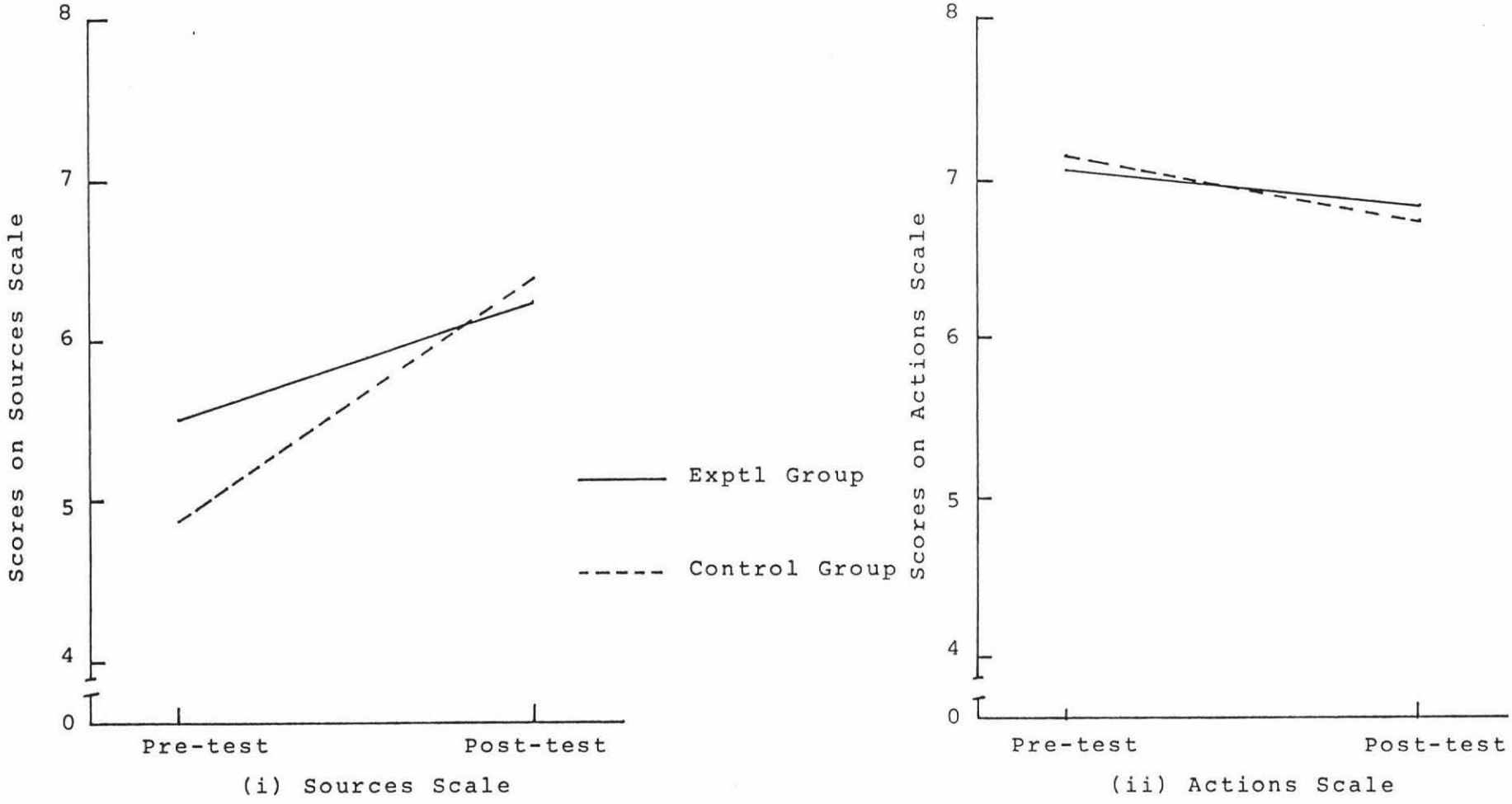

Figure 2: Pre and Post-test scores on Sources and Actions scales according to treatment groups.

3.2 Hypothesis II

The two 4-way ANOVA's discussed earlier and summarised in Appendix G were also examined to test the second Hypothesis. Figure 3 (see also Table 8 in Appendix H) shows pre and post-test means for each of the types of subscales according to treatment groups (experimental versus control), Career Decision Style (Rational versus other styles).

An initial examination of the 5-way ANOVA (See Appendix F) showed a significant interaction relevant to this hypothesis for treatment groups by career decision style by overall scale (mean of Sources and Actions subscales) for pre versus post-test, $F_{1,82} = 4.06$, $p < 0.05$.

Using the 4-way ANOVA (See Appendix G Tables 6 and 7), decomposition of the interaction relevant to this hypothesis showed no significant main effect for decision style (Sources $F_{1,82} = 0.10$, $p > 0.05$ and Actions, $F_{1,82} = 0.01$, $p > 0.05$). There were no significant interactions for treatment groups by career decision style either (Sources $F_{1,82} = 0.74$, $p > 0.05$ and Actions, $F_{1,82} = 0.27$, $p > 0.05$). There was however a main effect for pre versus post test on the Sources scale, $F_{1,82} = 14.17$, $p < 0.001$ but not on the Actions Scale, $F_{1,82} = 1.41$, $p > 0.05$

The interaction from the separate analysis, relevant to the hypothesis (treatment groups by career decision style by Pre/Post-test) were not significant (Sources $F_{1,82} = 3.77$, $p > 0.05$ and Actions $F_{1,82} = 0.31$, $p > 0.05$).

Focusing initially on those with a Rational decision style it can be seen that (Figure 3) subjects in both the experimental and control groups increased mean scores from pretest to post-test. This was significant on the Sources scale for the Experimental group ($F_{1,86} = 5.382$, $p < 0.025$) but not for the

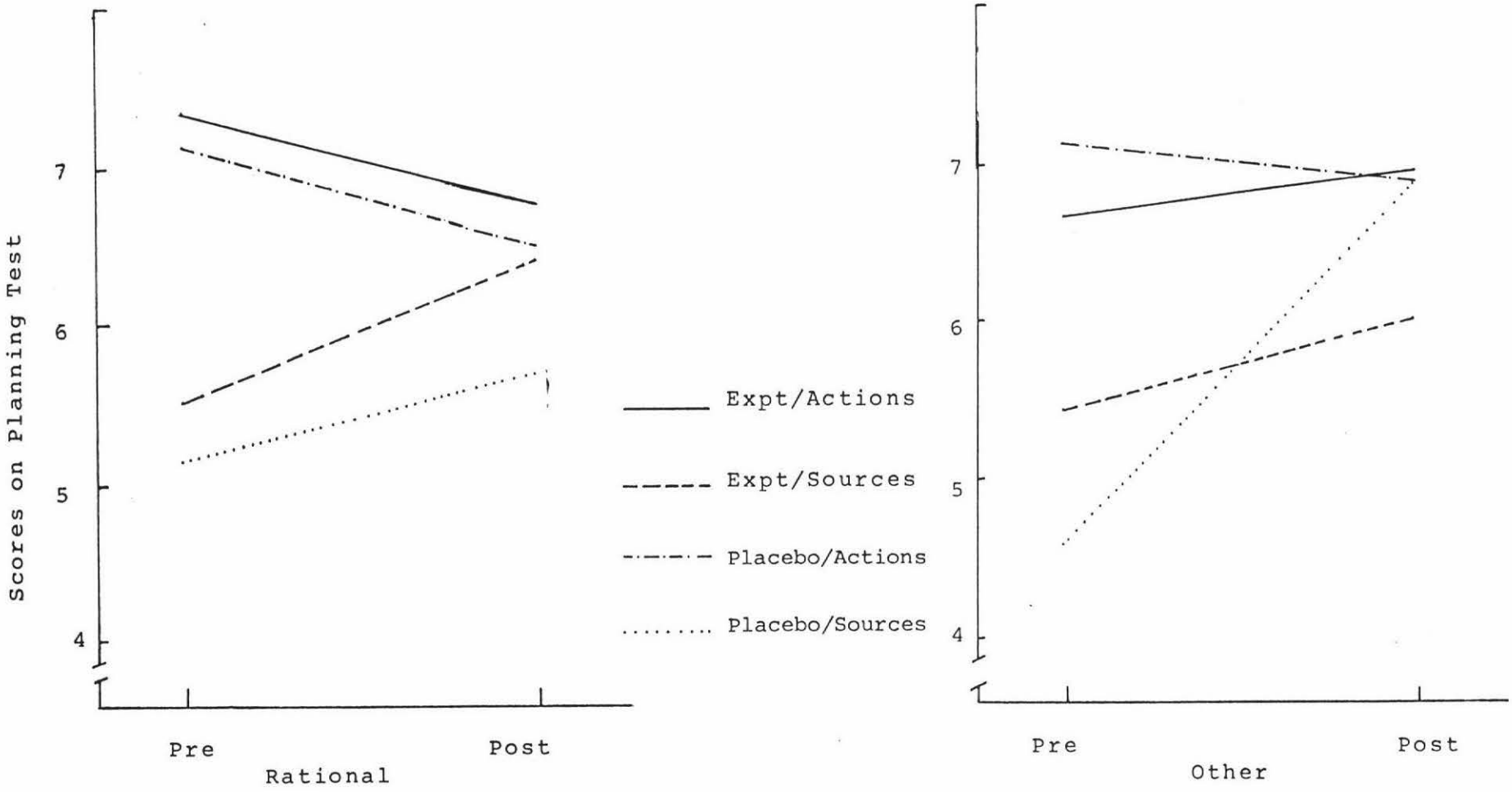

Figure 3: Showing trends for rational/other career decision styles according to experimental or control groups for scores on Sources and Actions measures on pre and post-tests.

control group ($F_{1,86} = 0.56$, $p > 0.05$). Those with a Rational style showed a decrease (not significant) in their mean scores for the Actions scale from pre to post-test (Experimental, $F_{1,86} = 3.412$, $p > 0.05$ and Control $F_{1,86} = 1.345$, $p > 0.05$). The students with other styles showed non significant increases on both scales for the experimental group (Sources, $F_{1,86} = 1.48$ $p > 0.05$ and Actions $F_{1,86} = 0.946$, $p > 0.05$). In the control/ placebo group students with other styles gained significantly on the Sources scale ($F_{1,86} = 12.549$, $p < 0.01$) but showed no change on the Action scale ($F_{1,86} = 0.194$, $p > 0.05$).

The hypothesis predicted that Rational decision style users would show more benefit from the career decision-making exercise than those using other styles. These results show a significant gain for those with a Rational decision style on the source scale only for the experimental group, but not for the control group. However those with other styles showed a significant increase on the Sources scale among students exposed to the placebo activity, but not for those exposed to the experimental intervention. Both decision style and the content of the intervention are important but the nature of their influence fails to support the predictions of the hypothesis.

3.3 Hypothesis III

To assess this hypothesis, as in Hypotheses I and II, the two four factor mixed block design ANOVA's presented in Appendix G were examined.

There was no significant main effect for the Test of Scholastic Abilities (TOSCA) on the Sources scale ($F_{1,82}$= 3.95, $p > 0.05$). However the TOSCA main effect was significant ($F_{1,82}$ = 5.16, $p < 0.05$) on the Actions scale with mean scores of 7.32 (High TOSCA) and 6.60 (Low TOSCA). The interaction of TOSCA by treatment group was significant for Sources ($F_{1,82}$ = 7.41, $p < 0.01$) but not for Actions ($F_{1,82}$= 2.42, $p > 0.05$) The average of the pre plus post-test scores was highest in the Experimental High TOSCA group. The meaning of this interactio becomes clearer when examining subsequent decompositions.

The interaction most relevant to the first part of this hypothesis is Treatment groups by TOSCA by pre/post-test which resulted in F values for Sources of $F_{1,82}$ = 0.05, $p > 0.05$; and Actions of $F_{1,82}$ = 1.76, $p > 0.05$. While this is not significant the graph of the pre and post-test means in Figure 4 does indicate that within the experimental groups a greater gain on the Sources scale for those of high TOSCA compared with those of low TOSCA. Paired comparison calculations (see Appendix K) give values of $F_{1,82}$ = 0.475, $p > 0.05$ for low TOSCA (Sources) and $F_{1,82}$ = 9.057, $p < 0.01$ for high TOSCA (Sources). Within the control groups the gains on the Sources scale were similar (High TOSCA $F_{1,82}$ = 8.896, $p < 0.05$ and low TOSCA $F_{1,82}$ = 1.17, $p > 0.05$). However as overall the type of intervention had no differential effect for those of high or low academic ability, Hypothesis III part (i) is not supported.

When testing Hypothesis III, part (ii) a significant interaction was obtained for treatment groups by career decision style by TOSCA by pre-post test for the sources Scale ($F_{1,82}$ = 6.31, $p < 0.05$). The same interaction on the Actions Scale was not significant ($F_{1,82}$ = 3.52, $p > 0.05$).

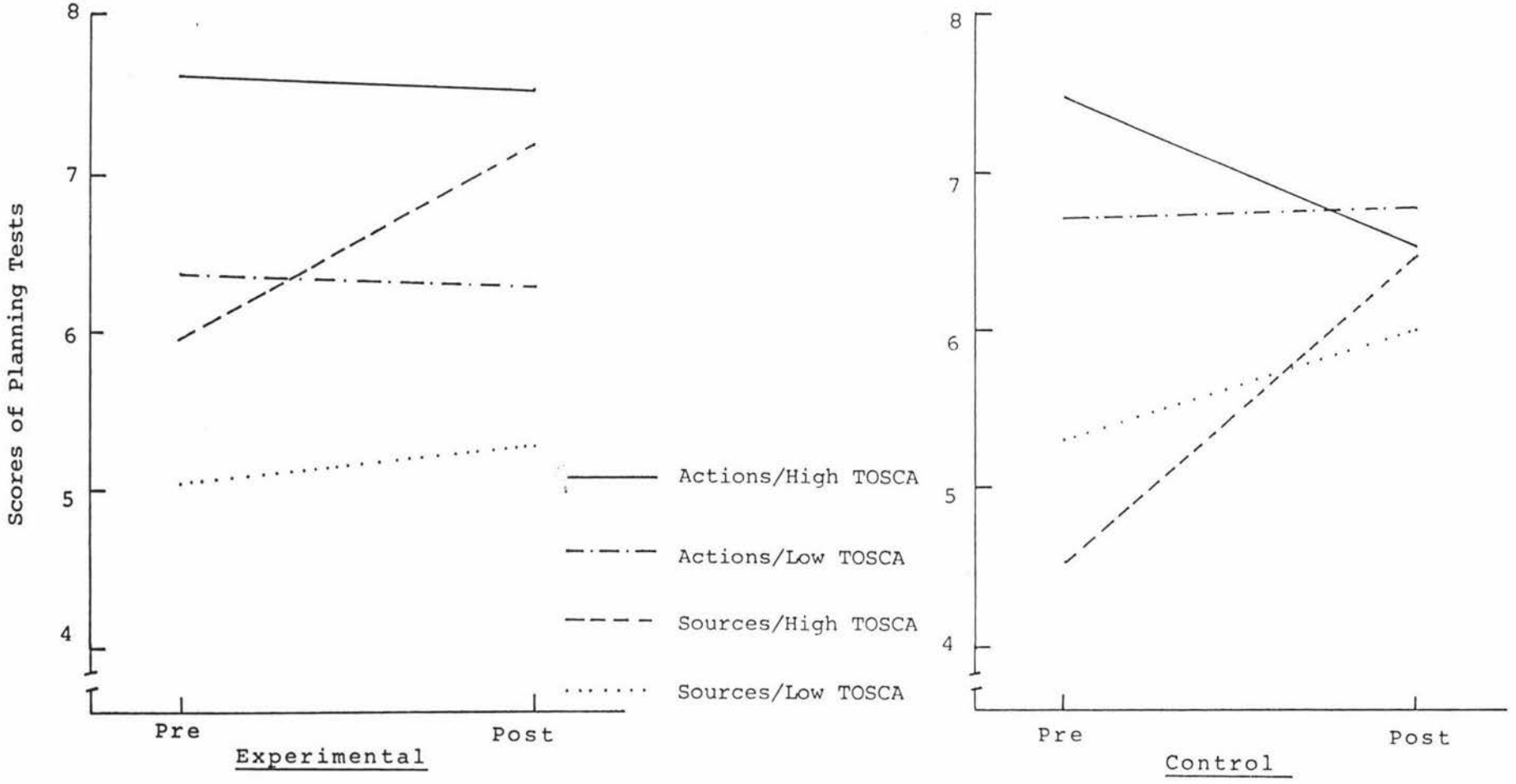

Figure 4: Graphs showing the interactions of TOSCA by Sources and Action scales for experimental and control groups.

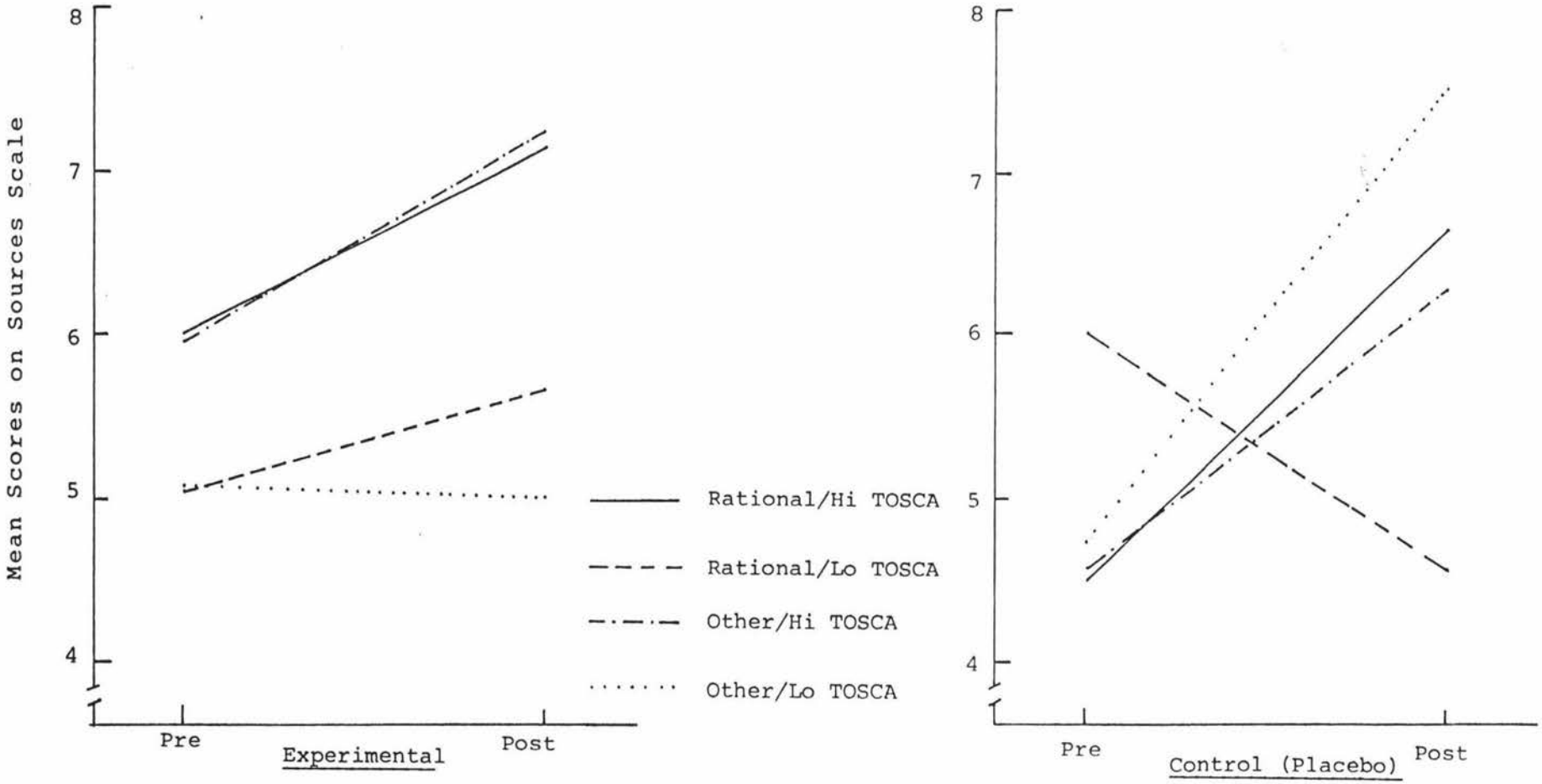

Figure 5: Graphs showing Pre/Post-test mean scores for experimental and control groups. The interaction between career decision style and TOSCA is shown for the Sources scale only.

To further decompose and indentify the basis of the above results graphs of the means are shown in Figure 5. Only the Sources scale is shown as thatrelevant on the Actions scale was not significant. Gains of significant magnitude are shown (using planned comparisons) between pre-test and post-test for high TOSCA students using Rational Style for both the Experimental group $F_{1,82} = 4.853$, $p < 0.05$ and the control group $F_{1,82} = 5.170$, $p < 0.05$, but not for high TOSCA students using other styles (Experimental $F_{1,82} = 3.912$, $p > 0.05$ and Control $F_{1,82} = 3.778$, $p > 0.05$). Although from the graph those with other styles appear to show significant gains the small sample size (N=12) rendered the F value below the critical level of $F_{1,82} = 3.971$. The low TOSCA students in the experimental group with a rational style made non significant gains $F_{1,82} = 1.388$, $p > 0.05$, while no gain was obtained for those with other styles, $F_{1,82} = 0.013$, $p > 0.05$. Those with low TOSCA scores in the control group showed a non significant decrease on the sources scale if using a rational style, $F_{1,82} = 1.798$, $p > 0.05$, but a significant increase if preferring other styles, $F_{1,82} = 10.448$, $p < 0.01$. Although the decrease appears from the graph to be significant the small (N=5) numbers rendered this non significant.

The above results do not support Hypothesis III part (ii). Those with a rational style who scored low on TOSCA did show gains in the Experimental condition but these were not significant. However this was only for the Sources scale and a loss was shown for students in the same category in the control group. It should also be noted that the largest significant gain was for low TOSCA students in the Control condition who used other styles. Significant gains were found in both conditions for high TOSCA students who favoured Rational decision styles. These results are contrary to those predicted.

3.4 Supplementary Analysis

The following supplementary analyses were completed to assist in the interpretations of the major hypotheses and to help rule out alternative explanations by looking at the effect of other variables not specifically controlled. Pearson correlations were used to examine the relationships of abstract reasoning, socio-economic status and school subject choice with scores on the Sources and Actions scales. Table 2 shows Pearson correlation co-efficients for all variables considered in this study. (see appendix I).

Abstract reasoning (as assessed by the Logical Reasoning Test) correlated highly with the test of scholastic ability ($r_{81} = 0.40$ $p < 0.001$) suggesting measurement of similar attributes. Significant correlations were also recorded for abstract reasoning with subject choice ($r_{86} = 0.28$ $p = 0.010$), and post-test Sources Scale ($r_{86} = 0.29$, $p = 0.006$). Significant negative correlations were found with socio-economic status ($r_{79} = -0.26$, $p = 0.02$) and Intuitive decision style ($r_{86} = -0.24$, $p = 0.02$).

The socio-economic status variable correlated strongly with both TOSCA ($r_{81} = 0.40$, $p < 0.001$) and moderately with subject options ($r_{86} = 0.28$, $p = 0.01$), indicating that those of high socio-economic status scored highly on TOSCA and choose subject options needing logical reasoning skills.

Finally an examination of intercorrelations for subject options showed that it correlated significantly with TOSCA ($r_{85} = 0.31$, $p = 0.004$) which indicated those of high scholastic ability had chosen subjects requiring logical (abstract) reasoning.

The last statistical analysis carried out was also correlational. The decision test given to one of the experimental groups as an extra post-test (see Procedure) was correlated with the other Post-test measures. Results (see Appendix Q) showed no significant correlations. The alternatives score (Decision Test) and the Actions score (Planning Test) did show a one tailed correlation $R_{31} = 0.32$, $p = 0.04$ however. As such limited communality of measures was obtained no further use was made of the Decision Test scores. The issue will be raised in the discussion.

CHAPTER FOUR - DISCUSSION

The results presented in the previous chapter are discussed initially with reference to each of the hypotheses. In addition possible explanations for these findings are presented.

4.1 Outcomes of the Careers Intervention

The first prediction that those students who participated in the decision-making section of the careers intervention would make greater gains on both outcome measures of decision-making skills than other students in the study, was not supported. This result does not agree with results of other studies (Evans and Rector, 1978, Johnston et al 1981, Krumboltz et al, 1982, Laskin and Palmo, 1983) which suggest group work with students is a particularly effective manner in which to increase decision-making skills. The present study however used a standardised group programme which Tinsley et al (1984) suggest produces less success than programmes tailored more to group needs.

There were significant increases in both the experimental and control groups on the Sources scale but not on the Actions scale. This suggests that the interventions had an effect on one of the dependent measures (information sources) but not on the other (actions towards making a decision). Some limited support for such differential effects can be seen in the work of Baker (1981) who, in looking for specific improvement attributed to career decision-making interventions, found increased efficiency, in the knowledge of occupational information and identification of its appropriate sources. Both elements are included in the one outcome measure of Information Sources used in this study.

4.2 Decision Style Effects

The second prediction that students who used a rational career decision style would exhibit more benefit from career decision-making training than would those students favouring other styles was also not supported. The only other study of this type (Rubinton, 1980) reviewed, showed Rational career decision-makers gained more from such rationally ordered career interventions than did those who favoured Intuitive or Dependent career decision styles.

Decomposition of the significant interaction relevant to this hypothesis revealed that while gains were made in knowledge of information sources for all students non-significant losses were recorded on decision-making actions. The largest gain was actually made on the Sources scale amongst those favouring Intuitive or Dependent styles who participated in the placebo careers exercise (control group).

4.3 Academic Ability Effects

The third prediction regarding effects of academic ability is in two parts. The first part of the third hypothesis that those students of low academic ability would show the greatest gains in career decision-making skills after participating in a career decision-making intervention, was not supported. Those in both treatment groups irrespective of ability levels gained on the Sources scale from initially very low scores. For all students non-significant losses on the Actions scales were evident.

There is very little research on the effects of academic ability on careers interventions such as those used here. One study by Egner and Jackson (1978) does suggest a possible ceiling effect for students of high academic ability which would allow them to make only minimal gains. The results of this study possibly show similar effects especially on the Actions scale. However on the Sources scale greater gains were shown for those of high academic ability than students of low academic ability in both experimental and control groups. The suggestion that students of low academic ability may make greater gains (Perrone and Kyle, 1975, Baker and Popowicz, 1983) is not supported.

The second part of the third hypothesis predicts that students of low academic ability who favoured Rational career decision style would show greater gains from a specific decision-making skills exercise, than would those students of similar low academic ability who used Intuitive or Dependent styles. The results supported this prediction for knowledge of career information sources, not for actions related to career decision-making. However students classed as high on TOSCA and favouring a Rational career decision style, but experiencing the placebo career exercise, also showed significant gains on the Sources scale. This result suggests that any career intervention is effective in increasing the knowledge of

information sources for those of high academic ability who use a Rational career decision style.

In addition an interesting result was obtained for those students who were low scorers for academic ability, who used either Intuitive or Dependent career decision styles and who were in the placebo intervention. These students recorded the greatest significant gain (on the Sources scale) for the Planning Tests.

The results of this study appear contrary to Rubinton's (1983) suggestion that the career decision style of the intervention must match the style favoured by the participant, as gains were noted for all styles. The results suggested that career decision style did have differential effects among those with different academic abilities. A useful extension of Rubinton's (1983) work would be to consider academic ability in addition to career decision style when suggesting suitable careers interventions. Further research examining the interaction of these two variables is warranted.

4.4 Other Influences

In addition it is worthwhile to examine the relationships among the measure of abstract reasoning, biographical details and academic measures, as these indirectly relate to all hypotheses. The measure of abstract reasoning was obtained in order to check that students had reached an abstract level of cognitive development and to control for this effect on career decision-making. Correlations revealed strong links between it and all the academic measures (TOSCA and the three PAT Tests). Because of this the use of abstract reasoning as a separate variable was rejected in favour of using only one academic ability measure (TOSCA).

Correlations showed that students strong in abstract reasoning were high scorers on TOSCA (and the PAT Tests) and chose subject options categorised as requiring logical reasoning (e.g. Languages, music, economics). Interestingly socio-economic status (S.E.S.) also correlated with these variables. A student of high S.E.S. scored highly on TOSCA, abstract reasoning and chose logical subject options. These relationships are suggestive of a combined influence on the student of school (TOSCA and subject options) and family (S.E.S.) as suggested in the Vocational Decision model proposed as a framework for this study (see page 21).

While abstract reasoning, and the academic measures showed significant negative correlations with Intuitive career decision style, no correlations existed with other styles. This suggests that those of lower academic ability are not strong abstract reasoners and favour an intuitive career decision style. As many career interventions use programmes which assume participants are able to abstractly select suitable step by step courses of action to solve theoretical problems, it would seem reasonable to question whether students low on these abilities might perhaps benefit more from other ways of imparting career decision-making skills.

Of particular interest is the finding that Rational career decision style is clearly independent of academic ability there being no correlation between the two variables. The intuitive career decision style does show a small negative correlation with academic ability, those favouring an intuitive style having lower ability. Further investigation of the intuitive scale in terms of its construct validity is warranted.

4.5 General Discussion

There were both positive and negative aspects of the present study that could explain why there was no support for the predicted improvement in the experimental group over that obtained in the control groups.

The design used in this study had positive points. While the recommended quasi-experimental design (Cook and Campbell, 1979) suggested the use of a 'no action' control group this raised both ethical and practical questions in a school setting. Consequently a placebo intervention (Women in Work) was used. In order to avoid the use of deception, both career interventions were presented to all subjects with the order and time (before and after post-test) varied according to the condition (experimental or control) classes were in. Careful attention was given to the question of internal validity. The trainer was the same for all sessions during the interventions and was able to consistently provide the same teaching conditions for all classes. The same structure was used for each intervention. That is use was made of class interaction with the trainer, small group discussion of up to four students and individual pen and paper work, for each careers unit. These issues involving the trainer variable and the structure of the intervention are often ignored in evaluative research.

A more negative aspect of the present study was the lack of really suitable instruments to measure the outcome of the intervention. While the Planning Tests (Sources and Actions scales) were not tailored to the career programme, initial pilot testing and subsequent modification appeared to produce items suitable for use as outcome measures. Added to this was the availability of reliabilities (albeit based on USA studies) for the tests, and the fact that no similar tests were available in New Zealand. However analysis of the tests as a whole and the scales individually, undertaken on the present sample during the course of the study, revealed very low reliabilities, Consequently another dependent measure (Post-test only) was

administered to the last experimental group. This Decision Test and the post Planning Test showed a significant correlation only between the generation of alternative decision aims (D. Test) and the Actions scale (Planning Test). This lack of any clear relationsip between the tests failed to provide any additional confidence in the use of the New Mexico Planning Tests as a dependent variable. The adequacy of the measure of the effectiveness of the career intervention is therefore in doubt. Given this reservation about the measure, results should be treated as exploratory only and with considerable caution.

Other explanations for non-significant differences between the experimental and control groups relate to the personally involving nature of the placebo activity (Control group), the differing results for the Sources and Actions subscales (Planning Tests), and the complex manner in which career decision style and academic ability affected the results.

The effect of the placebo activity in the control group may be tied to its personal relevance to the students and their consequently greater interest in its content. This exercise appeared to be more relevent and enjoyable than the decision exercise and was not the neutral exercise that was intended. This could have led to more personal involvement for the control group students than was apparent for those in the experimental group, which may have stimulated out of class careers discussion and personal career related information searching. The learning needed to increase scores on the Planning Tests might have occurred outside the classroom, particularly for those stimulated by talking about women's work, which was a strong social issue for all the students in the study.

Directly related to the effect of the placebo exercise is the adequacy of the experimental decision-making exercise. Both exercises were in use as careers interventions in New Zealand schools. While content of the decision-making exercise

could also be made relevent to a student's personal career decision it still seemed more sterile and was less adaptable to imaginative discussion. For many of the students in this study the thought of making a career decision was too distant to be a realistic topic. The reaction of all groups in the study to the career decision exercise was restrained and took more experimenter effort to keep it flowing. The content of this exercise could have benefited from covering more clearly the decision steps currently suggested as effective by theories of career decision-making, rather than relying on the existing career decision exercises.

While such measures as the Planning Tests must be suited to the intervention there is also a danger of 'teaching to the test' within the intervention,rather than teaching the skills needed by the career decision-maker. Spokane and Oliver (1983) suggested that the greater gains in group interventions over those obtained from individual counselling may simply be due to a tendency to teach to the test. In the present research there was no attempt to teach to the test. This is a significant issue warranting further discussion in the literature.

For the Planning tests used in the present study the two subscales provided divergent results. The knowledge of information sources was perhaps more readily assessed using a pen and paper test than knowledge of actions (for decision-making), which may be more accurately assessed using behavioural measures. Actions also tend to be applied differently for each specific career situation, and it is not easy for students to accurately imagine a course of action to take when faced with a hypothetical decision. It should also be noted that the lack of a clear relationship to the open-ended measure (the Decision Test introduced as an extra post-test) suggests that some doubt exists as to what the Planning Tests are really measuring and this aspect also requires further investigation.

From the present study it is evident that a complex relationship exists between academic ability and career decision style. Reservations concerning the instruments used to measure these variables also need highlighting.

While the measure of Rational, Intuitive and Dependent career decision styles showed alpha reliabilities for the present sample similar to those in previous studies (Rubinton et al, 1979, and Berger-Gross et al, 1983) interrelationships between the scales varied, particularly for the Dependent scale. This Dependent scale showed no correlation with either of the other scales yet Harren (1978) found negative correlations with the Rational scale and positive correlations with the Intuitive scale. Numbers of students classified as Rational were also proportionally larger in the present study than in other studies (Harren 1978, Rubinton et al 1979). Reasons for such numerical differences could be related to differing societal influences on students in New Zealand, and would be a topic needing further exploration before definitive answers emerged. The issue of socially desirable responses to careers decision style questionnaires remains to be investigated.

The instrument used to assess academic ability (TOSCA) correlated highly with other measures of academic proficieny and logical reasoning, so would appear to be reasonable for the purposes of this study. The fact that all these measures are designed for New Zealand students goes some way toward explaining their intercorrelation and ease of use in the present study.

Many studies fail to check the reliability of the instruments used. This is a particular problem in New Zealand where measures developed overseas are employed. Reliabilities of all important measures were checked on the data obtained in the present study highlighting the difficulty with the New Mexico Planning Tests. It would seem essential that these checks be completed whenever possible.

4.3 Future Directions

With competition for job opportunities currently increasing, the New Zealand school system is being encouraged to cater for a transition to work period for students about to enter the workforce. This would be made much simpler if effective careers programs preceeded this period. There is a need for exploratory studies on innovative methods of teaching career decision-making skills so that careers education is an attractive option within the school syllabus for both teachers and students.

The lack of outcome measures suitable for New Zealand schools should be rectified. As computers become increasingly available, the well tried overseas measures could possibly be adapted for use in New Zealand schools career programs. The use of computerised careers decision-making exercises is a valuable tool for overextended teachers and careers advisors.

In the light of the present study more exploraty work is also needed concerning the effect of influences, such as academic ability, career decision style and family, on the career decision-maker and his/her behaviour regarding career choice.

Finally there is a need for research into the theoretical bases for many of the currently used career decision-making interventions. If this structure could then be translated into behavioural objectives, outcome measures would be more readily anchored in observable behaviour rather than trainers relying on doubtful pen and paper measures for what is essentially a practical activity.

4.4 Summary and Conclusions

In the present study Fourth Form female students did not gain appreciably in decision-making skills from an intervention designed for this purpose. Instead all students, gained in knowledge of sources of career information regardless of which career intervention they received.

It was demonstrated that students favouring the use of a Rational career decision style did not show greater gains in career decision skills than those using other career decision styles, when participating in an exercise to teach such skills. However students favouring non-rational career decision styles registered significant gains on the planning measure, if they participated in a similarly formated placebo exercise focusing on women in the workforce.

Changes in the performances on the outcome measures of the careers intervention did not differ consistly in high and low ability groups. All students gained in the knowledge of information sources regardless of academic ability. However the data did lend some support to an interaction between career decision style and academic ability. Of particular interest was the unexpected strong gain found among low TOSCA, non rational styles in the placebo intervention.

In summary the findings indicate that successful learning from a career decision-making intervention is influenced by both ability, and a combination of ability and career decision style, but the nature of this influence remains unclear. The need to carefully examine both the content and outcomes of such group careers interventions with appropriate theoretically based measures sensitive enough to change becomes an important task for the future.

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APPENDIX A

LOGICAL PROBLEM SOLVING

This test of Logical Reasoning purports to assess whether the subject is at a stage of formal operational logic (Piaget, 1972).

As this instrument is unpublished (Roache, 1973) an analysis of the component scales was carried out.

To test for internal consistency of each type of syllogism reliabilities were calculated using all items. Overall reliabilities were α = 0.566 and Spearman Brown = 0.662. Individual scales revealed even lower values: Familiar -α=0.440, Symbolic -α =0.076, and Biased -α=0.105. Dropping out of selected items (2, 3, 16, 17, 20, 23) to give 6 items for each scale raised reliability values: Familiarα= 0.458, Symbolic -α= 0.345 and Biased -α =0.357. This also raised the overal alpha to 0.664. To examine the grouping of items into the three scales a Factor Analysis revealled 9 factors. The first four factors for 69% of the variance and had 18 items loading on them. Items did not group according to the three scales and it was unlikely with the low alpha values that the division into three subscales was valid. However, the overall internal consistency is reasonable. (α =.664 with 18 items) and the total correct score was chosen as the measure of Logical Reasoning Level.

Table 3: Showing Percentage of Errors for each type of Syllogism and overall average for Logical Problem Solving Test.

Year	Errors			
	Symbolic	Familiar	Biased	Errors Overall %
1973 (n=23)i	31.5	23.4	38.6	31.2
1978 (n=10)i	14.0	21.5	25.2	20.2
1980 (n=30)i	22.7	16.5	24.6	17.9
1981 (n=19)i	19.6	9.7	15	14.9
1982 (n=28)i	20.4	11.45	16.3	16.0
1983 (n=25)i	18.4	13.53	13.30	15.1
1983 (n=27)Em	18.38	14.38	25.00	19.2
1984 (n=16)Em	20.30	4.0	14.0	12.8
1984 (n=18)i	16.90	10.3	15.7	14.3
1984 (n=7)see note 1	16.1	7.1	7.1	10.1
1984 (n=95)see note 2	35.5	36.3	30.3	34.1

NOTES

i = internal university students

em = extramural university students

Note 1 = Airline computer analysts

Note 2 = Females between 13 years 7 months and 15 years 2 mont scoring between 3rd and 99 percentiles on TOSCA

APPENDIX B

TOSCA - Test of Scholastic Abilities

TOSCA is a scholastic measure developed for New Zealand conditions to replace I.Q. Tests designed and standardised outside this country. Some controversy surrounds its claim not to be a standard I.Q. Test.

Nash (1983) suggested that it is an I.Q. Test under a different title which, if used as a measure to stream classes, would exclude Maori pupils from the top streams as it has ethnic and socio-economic biases. Reid et al (1983) acknowledged the lower scores of Maori students and noted that girls also tended to score higher than boys but offered no solution to the problem. Others (Tuck, 1983 and Mathew, 1983) see TOSCA of some use, with the ethnic and socio-economic bounds mentioned above, for placing pupils for whom no other comparable academic measures are available. Longitudinal studies of TOSCA are being carried out (St George and Chapman, 1983) and it has been suggested (Nash 1983) that Maori pupils be assessed to establish scholastic ability on less verbally based tests.

As subjects in this study were classed using both TOSCA and PAT tests correlations were calculationed for subjects in the present study, Pearson correlation are given with Reid et al (1981) results in brackets.

TOSCA and PAT (Maths), $r(101) = 0.765, p < 0.001$ (.77)

TOSCA and PAT (Vocab), $r(101) = 0.756, p < 0.001$ (.74)

TOSCA and PAT (Compreh), $r(101) = 0.759, p < 0.001$ (.71)

Relationships between PAT (Comprehension) and PAT (Vocabulary) were high at $r(101) = 0.835$ which is reflected in their similar relationships to TOSCA. However while Tuck (1983) suggests correlations between PAT reading tests and PAT (Maths) of 0.55 this study found correlations as follows:

PAT (Maths) and PAT (Vocab), $r(101) = 0.685$ $p < 0.001$

PAT (Maths) and PAT (Compreh), $r(101) = 0.789$ $p < 0.001$

This raises questions concerning the PAT (Maths) measuring mathematical reasoning and how dependant it may be on reading/verbal ability, in this sample at least.

APPENDIX C

HARREN'S ASSESSMENT OF CAREER DECISION STYLE.

Harren's career decision styles have been used recently in a number of studies. Using the original version internal consistency was low for each of the scales:

Rational α = .57 (Harren, 1979); α = .34 (Lunneborg, 1978)

Intuitive α = .15 (Harren, 1979); α = .31 (Lunneborg, 1978)

Dependant α = .55 (Harren, 1979); α = .40 (Lunneberg, 1978)

However the version used in this present study showed higher values and the reliabilities obtained for the present sample are shown in Table 4 together with those from other studies.

Table 4:
Showing Alpha reliabilities for Harren's career decision-making styles.

Style	Rubinton et al (1979) N=120	Berger-Gross et al (1983) N=302	Present Study N=90
Rational	.72	.81	.68
Intuitive	.60	.67	.53
Dependent	.69	.82	.70

Interscale correlations (Berger Gross et al, 1983) showed the Rational Scale as having a low negative relationship (r=-0.17) with the dependent scale and similarly with the intuitive scale (r=-0.4). The dependent and intuitive scales were found to be positively correlated (r=0.27).

This study found similar relationships between the Rational and Intuitive scales, r_{97}=-0.32, p=0.001, but not between the Rational and Dependent scales, r_{97}=0.08, p=0.22 or Dependent and Intuitive scales, r_{97}=0.06, p=0.29.

APPENDIX D

THE NEW MEXICO CAREER PLANNING TESTS

The test was evolved for the American School system and needed some language changes to suit New Zealand conditions. Christian names, information sources and school terminology were substituted with local equivalents. It was also noted that in New Zealand School Careers advisors were more often asked for careers information than School counsellors. Accordingly question 3 on pretest and question 17 on the post-test had 'consulting Employment/ Vocational Guidance leaflets as the correct option.

The use of vocational aptitude tests is not common in New Zealand so question 11 (pretest) has alternatives 'art teacher' and 'scores on art aptitude tests' both marked correct, and question 9 (post-test) had 'job leaflets' marked correct. Two other questions appeared to reflect a New Zealand social trend. Most respondents marked question 6 (pretest) suggesting Ken should 'try a year at university' rather than pursue being an airline steward. New Zealand universities are not difficult to enter or leave but there would be a very limited entry for airline stewards. Also question 20 (pretest) had respondents equally opting for finding 'jobs in food preparation' and 'helpful in teaching'. In New Zealand with some financial aid available to Teacher Trainees and the need to do well during training to find a permanent position, both answers would have similar value.

APPENDIX E

ITEMISED PROGRAM FOR THE CAREER DECISION MAKING UNIT

The following is a detailed report of the career decision-making program according to the activities for each of the four sessions.

SESSION ONE (TESTING)

Once all subjects were seated in the classroom the experimenter was introduced by the class teacher. The experimenter then stated that a unit in the careers eduction program would be taught over the next two weeks. As the experimenter needed some idea of how much knowledg they already had in this area this first period would be a 'testing' period. Each class used their normal social studies classroom as at this school students change classrooms for each subject.

The instructions for the Career Planning Test were read (see Appendix L) and subjects questions answered. Explanations for the following items, which had no easily translatible New Zealand alternatives were written on the blackboard:-

'Wallace Information retreival systems = a system where general factual information can be readily received.

Library Science = Library Studies

Business School = Polytechnic Institute

World Almanac = Similar to Pears Cyclopedia

Dictionary of Occupational Titles = gives jobs with a brief description of all aspects.

In question 13 Jim is at University.'

Vocational Guidance Leaflets were also exhibited to ensure subjects were aware of their format.

Subjects had 20 minutes to complete this test, and all did so within the time limit.

The second instrument in the Test Booklet Logical Problem Solving had a time limit of 15 minutes. The instructions were read according to those printed (see appendix L) and the example question discussed, to answer subjects questions. All subjects finished within the allotted time.

The final two sections of the Test Booklet were untimed. How Do I Make Decisions was described by the experimenter using wording as shown in the Test Booklet (see Appendix L). Subjects were told that once they finished this section they should fill in the Biographical Information as well. If they remembered their last years subject grades these could be given but this was optional. Subjects generally needed 15 minutes for the How Do I Make Decisions section and five minutes to complete Biographical Information.

All test booklets were collected by the experimenter and a statement regarding the content of the next session - its time and that no preparation was needed - was made.

SECOND SESSION (DECISION EXERCISE)

The following session was second for the experimental groups and fourth for the control/placebo group. This teaching unit used the booklet Career Planning and Decision Making (see Appendix M)

The first section was taught interactively between the experimenter and the class, with answers being written on the blackboard. All subjects participated and individually filled in the page 'Thinking about Yourself' in their booklets with the experimenters help.

Megan's Day was read and answered individually which then led to a discussion in pairs over similarities/ differences in the choice of important decisions. The experimenter moved around the room both observing and helping subjects with their answers.

'Group Decisions' was carried out in groups of four subjects and a group leader reported back to the whole class at the end of this section. The experimenter moved around groups encouraging or directing discussions on the activities. A class teacher 'summing up session'focused

on the definition of decision making generally and career decisions in particular. These groups finished the session here. the other group (high academic 'stream') finished after 'Taking Risks' session which was included in Session 3. Booklets were held by the experimenter to avoid loss before the next session.

SESSION 3 (DECISION MAKING CONTINUED)

The career Planning and Decision Making booklet was returned to subjects and the section 'Taking Risks' was completed in pairs. Next in a class - experimenter session the idea of consequences of actions was discussed using the answers to this exercise.

The second part of this session was a class - experimenter interaction, and covered the stages suggested for successful career choice. Answers to questions were elicited from the class and correct ones noted by subjects in the workbook.

Finally the idea of making one's own career decisions was discussed. Some groups managed to begin their own Personal Decision Making at the end of this session. All subjects were set the finishing of this section for homework and were therefore able to keep the workbooks.

The session ended with a short class discussion on 'Why should we make decisions anyway?'

SESSION 4 (POST-TEST AND WOMEN IN WORK UNIT)

The post-test for three groups consisted of only the Career Planning Test (see Appendix O). Subjects were allowed 15 minutes to answer twenty multichoice questions. The added measure for the fourth group (experimental) was the Decision-making Test (see Appendix P). Subjects were allowed 10 minutes to complete this question.

After this testing session the Women in Work booklet (see Appendix N) was distributed. The first section People at Work was done as a class - experimenter discussion with the blackboard used to record the differing answers individuals suggested. The section Changing Roles was worked by individuals in the workbook.

For all the experimental groups this was the end of their fourth session. It was suggested to the class teachers that they continue and finish the "Women in Work" booklet during the next period when they taught the class. All teachers did this.

SESSION 2 (PLACEBO CONDITION - WOMEN IN WORK)

This session for the control/placebo group began as outlines above for part of session 4 (experimental groups). The first section People at Work was taken as a class - experimenter interaction. Changing Roles was done individually and followed by class discussion.

The last section for this session was the first page of Top Jobs. Subjects ideas were discussed as a class group. The booklets were collected by the experimenter.

SESSION 3 (PLACEBO - WOMEN IN WORK)

This session began with a short revision of the early part of the Women in Work booklet. The next three sections: Man = Ability = Women, Opportunity or Prejudice and Ambition each involved individual work in booklets followed by class discussion and extension of ideas raised. The final page 'Thoughts to take home' were presented as a class discussion.

SESSION 4 (PLACEBO - POST TEST AND CAREER PLANNING AND DECISION-MAKING)

This session was run as the Session 4 for the experimental groups but the decision-making unit was substituted for the Women in Work unit. As with the other classes this class had the decision unit finished off by their teacher.

APPENDIX F

Table 5:

SUMMARY ANOVA TABLE FOR COMBINED INFORMATION SOURCES & ACTIONS

A=Treatment Groups, B=D.M. Style, C=TOSCA, D=Subscales
E=Pre/Post-Test.

Sources	SS	df	MS	F	P
Between Subjects					
A	1.94	1	1.94	0.42	
B	0.38	1	0.38	0.08	
C	29.94	1	29.94	6.59	0.05
AB	3.07	1	3.07	0.67	
AC	29.28	1	29.28	6.45	0.05
BC	1.80	1	1.80	0.39	
ABC	6.64	1	6.64	1.46	
Error between (S/ABC)	377.46	82	4.53		
Within Subjects					
D	102.56	1	102.56	50.81	0.001
AD	0.86	1	0.86	0.42	
BD	0.00	1	0.00	0.00	
CD	0.27	1	0.27	0.13	
ABD	0.14	1	0.14	0.07	
ACD	1.62	1	1.62	0.80	
BCD	0.03	1	0.03	0.01	
ABCD	0.03	1	0.03	0.01	
Error within 1(DxS/ABC)	164.82	82	2.01		
E	11.23	1	11.23	4.59	0.05
AE	0.18	1	0.18	0.07	
BE	9.58	1	9.58	3.92	
CE	1.25	1	1.25	0.51	
ABE	3.13	1	3.13	1.28	
ACE	0.89	1	0.89	0.36	
BCE	6.28	1	6.28	2.57	
ABCE	21.27	1	21.27	8.70	0.01
Error with 2(ExS/ABC)	200.08	82	2.44		
DE	29.65	1	29.65	15.72	0.001
ADE	3.72	1	3.72	1.97	
BDE	0.14	1	0.14	0.07	
CDE	11.65	1	11.65	6.17	0.05
ABDE	7.66	1	7.66	4.06	0.05
ACDE	2.07	1	2.07	1.09	
BCDE	2.25	1	2.25	1.19	
ABCDE	1.58	1	1.58	0.83	
Error within 3(DExS/ABC)	154.16	82	1.88		

APPENDIX G

Table 6:

SUMMARY ANOVA TABLE FOR SOURCES

A=Treatment Groups, B=D.M. Style, C=TOSCA, D=Pre/Post Sources

Sources	SS	df	MS	F	P
Between Subjects					
A	2.71	1	2.71	0.90	
B	0.31	1	0.31	0.10	
C	11.88	1	11.88	3.95	
AB	2.24	1	2.24	0.74	
AC	22.29	1	22.29	7.41	0.01
BC	0.93	1	0.93	0.31	
ABC	3.94	1	3.94	1.31	
Error Between (S/ABC)	246.00	82	3.00		
Within Subjects					
D	38.62	1	38.62	14.17	0.001
AD	2.88	1	2.88	1.05	
BD	5.91	1	5.91	2.17	
CD	10.37	1	10.37	3.80	
ABD	10.28	1	10.28	3.77	
ACD	0.14	1	0.14	0.05	
BCD	8.03	1	8.03	2.94	
ABCD	17.20	1	17.20	6.31	0.05
Error within(DxS/ABC)	223.04	82	2.72		

Table 7:

SUMMARY ANOVA TABLE FOR ACTIONS.

A=Treatment, B=D.M.Style, C=TOSCA, D=Pre/Post Actions

Sources	SS	df	MS	F	P
Between subjects					
A	0.10	1	0.10	0.02	
B	0.06	1	0.06	0.01	
C	18.33	1	18.33	5.16	0.05
AB	0.98	1	0.98	0.27	
AC	8.61	1	8.61	2.42	
BC	0.91	1	0.91	0.25	
ABC	2.73	1	2.73	0.76	
Error Between (S/ABC)	290.28	82	3.54		
Within Subjects					
D	2.26	1	2.26	1.41	
AD	1.02	1	1.02	0.63	
BD	3.81	1	3.81	2.37	
CD	2.53	1	2.53	1.57	
ABD	0.50	1	0.50	0.31	
ACD	2.82	1	2.82	1.76	
BCD	0.49	1	0.49	0.30	
ABCD	5.65	1	5.65	3.52	
Error within(DxS/ABC)	131.20	82	1.60		

APPENDIX H

Table 8: Showing cell means and numbers with each cell

			D1 Sources		D2 Actions	
Group	Style	Tosca	E1 Pre	E2 Post	E1 Pre	E2 Post
A1 Experimental n=65	B1 Rational n=39	C1 High n=20	6.00	7.15	8.00	7.20
		C2 Low n=19	5.05	5.68	6.63	6.37
	B2 Other n=26	C1 High n=12	5.91	7.25	7.25	7.92
		C2 Low n=14	5.07	5.00	6.21	6.29
A2 Control n=25	B1 Rational n=11	C1 High n= 6	4.50	6.67	7.50	6.83
		C2 Low n= 5	6.00	4.60	6.80	6.20
	B2 Other n=14	C1 High n= 7	4.57	6.29	7.57	6.29
		C2 Low n= 7	4.71	7.57	6.71	7.57

N = 90 Subjects

Table 9: Showing Pearson correlation co-efficients for variables. (one tailed)

	SOURCES (Pre)	SOURCES (Pre)	ACTIONS (Pre)	SOURCES (Post)	ACTIONS (Post)	CDM (Rat)	CDM (Int)	CDM (Dep)	PLAN 1	PLAN 2	TOSCA	PAT (Maths)	PAT (Vocab)	PAT (Comp)	SUBJECT OPTIONS	SES
Actions (Pre)	0.2299 (90) P=0.015															
Sources (Post)	0.0908 (90) P=0.197	0.3509 (90) P=0.000														
Actions (Post)	0.1424 (90) P=0.090	0.3931 (90) P=0.000	0.4559 (90) P=0.000													
C.D.M (Rat)	-0.0448 (90) P=0.337	0.0642 (90) P=0.274	-0.0888 (90) P=0.203	-0.0907 (90) P=0.198												
C.D.M (Int)	-0.1311 (90) P=0.109	-0.2897 (90) P=0.003	-0.1592 (90) P=0.067	-0.2299 (90) P=0.015	-0.3383 (90) P=0.001											
C.D.M (Dep)	-0.0269 (90) P=0.401	-0.2339 (90) P=0.013	-0.1529 (90) P=0.075	-0.0046 (90) P=0.483	0.0672 (90) P=0.264	0.0041 (90) P=0.485										
Plan 1	0.8050 (90) P=0.000	0.7625 (90) P=0.000	0.2742 (90) P=0.004	0.3343 (90) P=0.001	0.0093 (90) P=0.465	-0.2638 (90) P=0.006	-0.1605 (90) P=0.065									
Plan 2	0.1354 (90) P=0.102	0.4349 (90) P=0.000	0.8658 (90) P=0.000	0.8401 (90) P=0.000	-0.1051 (90) P=0.162	-0.2263 (90) P=0.016	-0.0958 (90) P=0.185	0.3551 (90) P=0.000								
TOSCA	0.3604 (85) P=0.000	0.4668 (85) P=0.000	0.3783 (85) P=0.000	0.3115 (85) P=0.002	-0.0000 (85) P=0.500	-0.3859 (85) P=0.000	-0.1238 (85) P=0.129	0.5263 (85) P=0.000	0.4070 (85) P=0.000							
P.A.T (Math)	0.3223 (85) P=0.001	0.4854 (85) P=0.000	0.3875 (85) P=0.000	0.3186 (85) P=0.001	-0.0223 (85) P=0.420	-0.3993 (85) P=0.000	-0.0997 (85) P=0.182	0.5129 (85) P=0.000	0.4166 (85) P=0.000	0.7566 (85) P=0.000						
P.A.T (Vocab)	0.3597 (85) P=0.000	0.5553 (85) P=0.000	0.3908 (85) P=0.000	0.3431 (85) P=0.001	-0.1216 (85) P=0.134	-0.3503 (85) P=0.001	-0.1138 (85) P=0.150	0.5808 (85) P=0.000	0.4323 (85) P=0.000	0.7796 (85) P=0.000	0.7102 (85) P=0.000					
P.A.T (Compreh)	0.3237 (85) P=0.001	0.6017 (85) P=0.000	0.4418 (85) P=0.000	0.3537 (85) P=0.000	-0.0571 (85) P=0.302	-0.4041 (85) P=0.000	-0.2001 (85) P=0.033	0.5861 (85) P=0.000	0.4697 (85) P=0.000	0.7603 (85) P=0.000	0.8000 (85) P=0.000	0.8255 (85) P=0.000				
Subject Options	0.0509 (90) P=0.317	0.2385 (90) P=0.012	0.0990 (90) P=0.177	0.1576 (90) P=0.069	-0.1372 (90) P=0.099	-0.0815 (90) P=0.223	0.1219 (90) P=0.126	0.1792 (90) P=0.045	0.1490 (90) P=0.081	0.3054 (85) P=0.002	0.2831 (85) P=0.004	0.3683 (85) P=0.000	0.2719 (85) P=0.006			
S.E.S	-0.0610 (83) P=0.292	-0.2233 (83) P=0.021	-0.0667 (83) P=0.275	-0.0960 (83) P=0.194	0.0839 (83) P=0.225	0.1150 (83) P=0.150	-0.1776 (83) P=0.054	-0.1765 (83) P=0.055	-0.0965 (83) P=0.193	-0.3056 (78) P=0.003	-0.3432 (78) P=0.001	-0.4300 (78) P=0.000	-0.4005 (78) P=0.000	-0.3490 (83) P=0.001		
Logic	0.1317 (86) P=0.113	0.2431 (86) P=0.012	0.2943 (86) P=0.003	0.1801 (86) P=0.049	-0.0654 (86) P=0.275	-0.1837 (86) P=0.045	-0.0813 (86) P=0.228	0.2422 (86) P=0.012	0.2814 (86) P=0.004	0.3971 (81) P=0.000	0.5582 (81) P=0.000	0.4666 (81) P=0.000	0.4838 (81) P=0.000	0.2780 (86) P=0.005	-0.257 (7 P=0.01	

APPENDIX J

A one way analysis of variance was conducted on pretest (Sources and Actions) scores to establish if any significant differences existed among the four classes prior to teaching the career units.

When comparing the 4 class means on each of the two planning scales and collapsing across the remaining factors the F values were significant - Sources ($F_{3.89} = 3.902, p<0.05$) and Actions ($F_{3.89} = 8.373, p< 0.001$). See Fig. 6 which shows class mean scores.

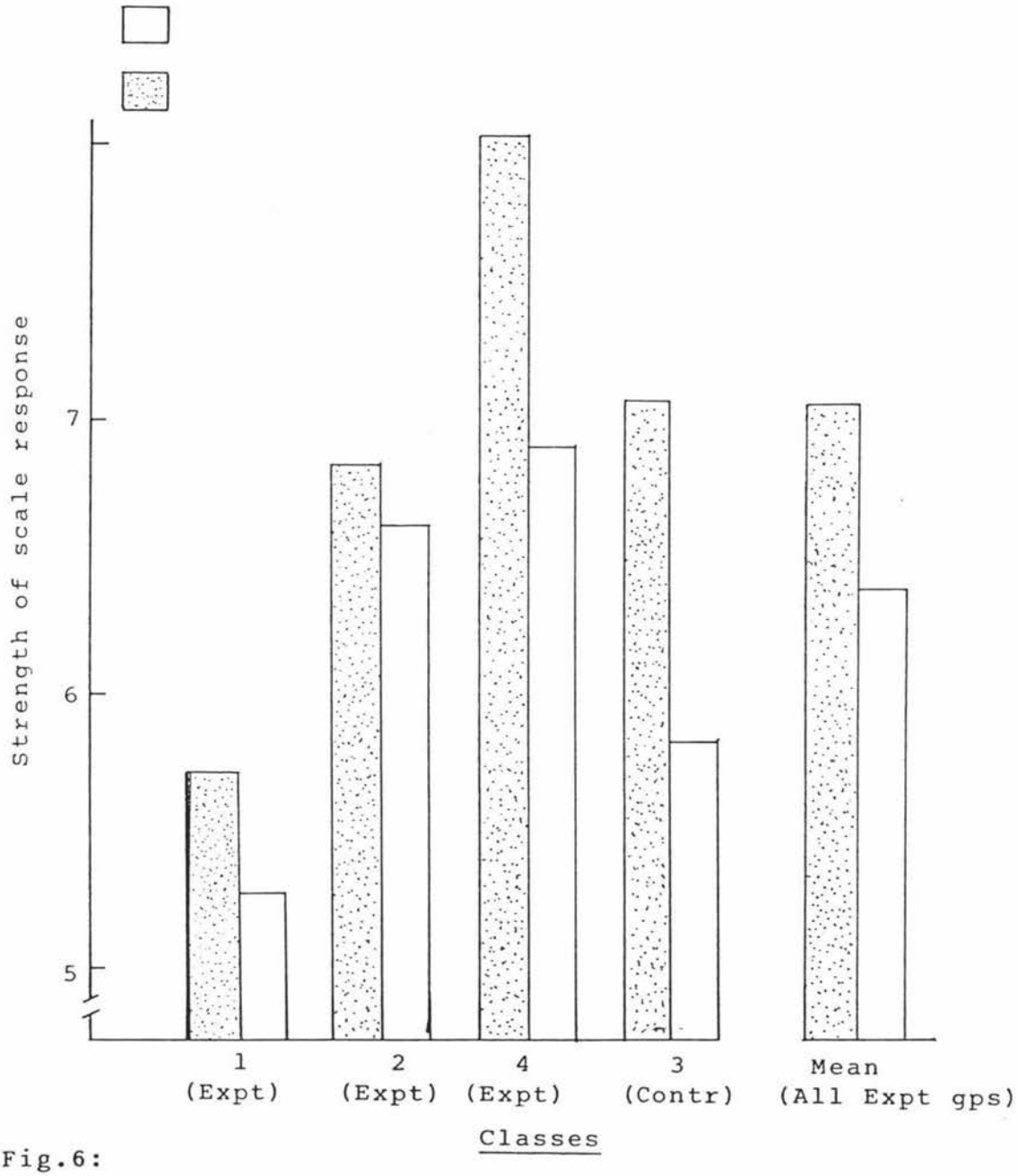


Fig.6:

Graph of mean scores on pretest for Sources and Actions according to class groups.

APPENDIX K

PAIR WISE COMPARISON CALCULATIONS

Hypothesis I: Sources Scale:

Exptl Condition $F_{1,88} = \frac{38.439}{5.93} = 6.482,\ p < 0.025$

Control Condition $F_{1,88} = \frac{57.76}{5.93} = 9.74,\ p < 0.01$

Action Scale:

Exptl Condition $F_{1,88} = \frac{2.225}{3.384} = 0.654,\ p > 0.05$

Control Condition $F_{1,88} = \frac{0.16}{3.384} = 0.047,\ p > 0.05$

Hypothesis II: Sources Scale:

Exptl /Rational $F_{1,86} = \frac{31.380}{5.83} = 5.382,\ p < 0.025$

Exptl /Other $F_{1,86} = \frac{8.656}{5.83} = 1.48,\ p > 0.05$

Control/Rational $F_{1,86} = \frac{3.267}{5.83} = 0.560,\ p > 0.05$

Control/Other $F_{1,86} = \frac{73.161}{5.83} = 12.549,\ p < 0.01$

Actions Scale

Exptl /Rational $F_{1,86} = \frac{11.288}{3.308} = 3.412,\ p > 0.05$

Exptl /Other $F_{1,86} = \frac{3.131}{3.308} = 0.946,\ p > 0.05$

Control/Rational $F_{1,86} = \frac{4.450}{3.308} = 1.345,\ p > 0.05$

Control/Other $F_{1,86} = \frac{0.641}{3.308} = 0.194,\ p > 0.05$

Hypothesis III: Sources Scale:

Exptl	TOSCA Hi/Rational	$F_{1,82} = \frac{26.45}{5.45}$	=	$4.853, p < 0.05$
	TOSCA Lo/Rational	$F_{1,82} = \frac{7.565}{5.45}$	=	$1.388, p > 0.05$
	TOSCA Hi/Other	$F_{1,82} = \frac{21.323}{5.45}$	=	$3.912, p > 0.05$
	TOSCA Lo/Other	$F_{1,82} = \frac{0.071}{5.45}$	=	$0.013, p > 0.05$
Control	TOSCA Hi/Rational	$F_{1,82} = \frac{28.175}{5.45}$	=	$5.170, p < 0.05$
	TOSCA Lo/Rational	$F_{1,82} = \frac{9.8}{5.45}$	=	$1.798, p > 0.05$
	TOSCA Hi/Other	$F_{1,82} = \frac{20.589}{5.45}$	=	$3.778, p > 0.05$
	TOSCA Lo/Other	$F_{1,82} = \frac{57.137}{5.45}$	=	$10.484, p < 0.01$
Experi-mental	TOSCA High	$F_{1,82} = \frac{49.362}{5.45}$	=	$9.057, p < 0.01$
	TOSCA Low	$F_{1,82} = \frac{2.587}{5.45}$	=	$0.475, p > 0.05$
Control	TOSCA High	$F_{1,82} = \frac{48.927}{5.45}$	=	$8.977, p < 0.05$
	TOSCA Low	$F_{1,82} = \frac{6.377}{5.45}$	=	$1.170, p > 0.05$

CAREER PLANNING

and

DECISION MAKING

Test Booklet

Name:

Class:

CAREER PLANNING TEST

This is a test of your knowledge of how to plan wisely for a career; how to get needed career information and how to make career decisions. Look at the sample item.

Linda a 4th Form student, thinks she would like to become a librarian. At this time, what would be the best thing for her to do to help make up her mind?

Read newspaper want ads to see what types of librarian positions are available.....	1
Read Wallace's Information Retrieval Systems.....	2
Work as a library assistant at school..	3
Survey University Handbooks to see what the courses in library science are like.....	4

The 3 has been marked for the sample item to indicate that working as a library assistant at school will give Linda more decision-making information for her career than the other activities. While each of the other alternatives would provide Linda with some information, none would be as useful to her as that of alternative 3.

When you are told to begin work, read each item and then mark your selected answer by filling in the appropriate space on your answer sheet. Mark only one choice for each question. If you change your mind after making a choice, erase completely the wrong choice and fill in the space for the alternative you want. If you are not sure of the answer to a question, make your best guess. Do not spend too much time trying to answer any one question.

DO NOT MARK IN THIS TEST BOOKLET. MARK ALL YOUR ANSWERS ON YOUR ANSWER SHEET

You will have 20 minutes to work on this test. If you finish before time is up, you may go back to check your work. Please be courteous to those who have not finished by being quiet and remaining seated.

If you have questions, ask them now.

Stop here: Wait for instructions.

. After testing and consultation with her counsellor, Martha has some specific questions about occupations in the transportation job area. She would like to know about the skill and training requirements, the expected opportunities, and the rates of pay. Which of the following is most likely to provide accurate answers?

- Vocational Guidance Leaflets..... *
- a worker in the transportation field....
- a film about the transportation industry.....
- a work sample of a transportation job...

. Hemi, will graduate this year with nearly an "A" average. He would like to go to university but his family wants him to work and begin to support himself. What should Hemi do first?

- investigate the possibility of scholarships and loans..... *
- get a job for a couple of years and save the money for University.....
- join the Armed Forces and become eligible for financial assistance.....
- leave home and hope he can go to university.....

. Edward has decided to study community nursing after high school. He can train in his local hospital, his local Community College or in a special job training programme 30 miles away. He wants to find out the relative merits of each programme. Which of the following would be his best source of information?

- his parents.....
- Vocational Guidance Information Leaflets.
- films on each of the programmes.....
- his counsellor..... *

4. Rita wanted to graduate early from business school and so she took extra courses during her first year. Her programme was too difficult and she is failing most of her courses now at mid-term. What is most appropriate for her to do?

- ask her parents to get her a tutor....
- decide what course or courses to drop in order to be able to pass the rest.. *
- drop out of school for the year.....
- do nothing but study for the rest of the year.....

5. Megan is interested in photography. She wants to find out about the different occupations in which photography is important. She would like to learn about training, salary, kind of work, etc. What source is most likely to be helpful?

- Dictionary of Occupational Titles....
- World Almanac.....
- Popular Mechanics.....
- Vocational Guidance Information Leaflets..... *

6. Ken's dad is a judge and would like Ken to go to university and become a judge too. Ken has to work hard for C's and B's in high school, and he is worried about being able to complete University law school. Ken likes travelling and talking to people and he was thinking about becoming an airline steward. What should Ken do?

- pursue becoming an airline steward... *
- follows his dad's advice.....
- try the first year at University and then decide whether to continue with Law.....
- enter the Armed Forces in order to have time to think.....

7. Mark thinks he wants to be an engineer like his uncle, but he is not sure whether he is qualified. What do you recommend he do to find out whether he has the qualifications?

- consult a counsellor about qualifications for engineering..... *
- ask his uncle if he is qualified....
- ask his mathematics and science teachers if he is qualified.....
- call up a firm that employs engineers.

8. Cheryl is entering Fifth Form. She thinks she wantsto be an electrician or an electrical engineer. She likes maths but she has to to work hard at it. This year she has to choose between a difficult math coursewhich leads to engineering or an easier course which should be sufficient for entering the occupation of electrican. What should she do?

- take the easier course.....
- take the course her friends are taking.....
- ask her counsellor to decide for her.....
- take the more difficult course to keep both options open..... *

Go onto next page ▶

9. Sally wishes to prepare for an occupation in which there will be many openings two years from now. How might she find out which occupations are likely to have openings?

- make an educated guess about what will be available..... ☐
- ask employers about the jobs they expect to have in 2 years..... ☐
- try to line up a job now for the future..... ☐
- ask the counsellor at the Vocational Guidance Service about expectations of jobs in two years..... *

10. Karen has been offered two jobs. One would permit her to travel and meet interesting people. The other would pay well and enable her to learn. How can she decide which job to take?

- consider which job meets her goal best..... *
- get the opinions of her friends about which job is best..... ☐
- ask the counsellor which job to select..... ☐
- toss a coin to decide..... ☐

11. Richard would like to be an artist, but he does not know how good he is at art relative to other students his own age. What would be his most accurate source of information?

- the opinions of his friends..... ☐
- his art teacher..... ☐
- his scores on art aptitude tests... *
- his counsellor..... ☐

12. Gretchen is a 7th Former, who had wanted to be a sociologist but her grades have been only C's and B's and her chances of entering university are only 5%. What would you recommend she do?

- don't worry about it until after she is at University..... ☐
- continue with her hope of being a sociologist because there is a chance she may succeed..... ☐
- consider what related occupations would be interesting and accessible.. *
- get a job until she can make up her mind..... ☐

13. Jim is taking a degree in psychology. He understands about the basic requirements of the school, but he is unsure about what electives to take. Who among the following would be most helpful?

- his 7th Form teacher whom he liked..... ☐
- a psychologist..... ☐
- the advisor in psychology..... *
- his brother who is an advanced student in the same school..... ☐

14. Margaret a 7th Former, is hoping to be a singer after graduation. She has a fine voice and has won several amateur contests. What would you recommend she do next in order to start a music career?

- let it be known that she is waiting for a break..... ☐
- find out how one begins a career in singing..... *
- keep entering contests..... ☐
- form a singing group since they are most popular..... ☐

15. Louise, a 6th Former hopes to be a chef. She is investigating different educational programmes. Where would she most likely learn about the training required for a chef?

- Dictionary of Occupational Titles.... ☐
- the chef in the local restaurant..... ☐
- Vocational Guidance Information Leaflets..... *
- Lovejoy's Guide to Colleges..... ☐

16. Tommy, a 6th Former was planning on going on to University, but his grades are only C's and D's. What to you recommend he do?

- see what grades he earns in the 7th Form..... ☐
- pick a university in which it is easy to pass..... ☐
- discuss his prospects for university success with a counsellor..... *
- get higher grades..... ☐

Go onto next page ▶

17. Rangi, a 7th Former, has heard about being a medical technician and thinks he might like the work. His grades are high enough to get into the programme, but he wants to learn more about what technicians do. What would help him most?

discuss the job with his counsellor.....	[ ]
arrange to watch a technician work by volunteering at the hospital.....	[*]
take vocational tests.....	[ ]
take a laboratory course this year..	[ ]

18. Sandy a 7th Former, had planned to attend university for four years in order to become an architect. Now she will only be able to spend one more year in school because of family financial problems. What do you recommend she do?

ask her parents to decide for her.....	[ ]
take training in drafting.....	[ ]
get a job and forget training.....	[ ]
discuss alternative courses with a counsellor.....	[*]

19. Brent, a 7th Former, is trying to decide whether to enter a training programme in dairy farming or in forest conservation. He would like to find out which occupation will have more jobs and what the difference is in salary between them generally. Where should he look?

Vocational Guidance Information Leaflets.....	[*]
Agriculture magazines.....	[ ]
Dictionary of Occupational Titles..	[ ]
Job ads in the newspaper.....	[ ]

20. Dean is hoping to work his way through Teachers College. He has heard that there are good part-time jobs available as cooks in restaurants, but he has no food preparation skills. This year he has two electives. What should he do about the electives.

select courses in food preparation so he can obtain part-time jobs more easily.....	[*]
select courses that will be helpful in teaching.....	[ ]
select courses that will be interesting.....	[ ]
select courses that will let him out of school early so the he can start working part-time.....	[ ]

Stop: end of test.

Note: Starred items were counted as correct. Items for each scale are:-

Sources: 1,3,5,7,9,11,13,15, 17,19.

Actions: 2,4,6,8,10,12,14,16 18,20.

17. Rangi, a 7th Former, has heard about being a medical technician and thinks he might like the work. His grades are high enough to get into the programme, but he wants to learn more about what technicians do. What would help him most?

- discuss the job with his counsellor..... [ ]
- arrange to watch a technician work by volunteering at the hospital..... [*]
- take vocational tests..... [ ]
- take a laboratory course this year.. [ ]

18. Sandy a 7th Former, had planned to attend university for four years in order to become an architect. Now she will only be able to spend one more year in school because of family financial problems. What do you recommend she do?

- ask her parents to decide for her..... [ ]
- take training in drafting..... [ ]
- get a job and forget training..... [ ]
- discuss alternative courses with a counsellor..... [*]

19. Brent, a 7th Former, is trying to decide whether to enter a training programme in dairy farming or in forest conservation. He would like to find out which occupation will have more jobs and what the difference is in salary between them generally. Where should he look?

- Vocational Guidance Information Leaflets..... [*]
- Agriculture magazines..... [ ]
- Dictionary of Occupational Titles.. [ ]
- Job ads in the newspaper..... [ ]

20. Dean is hoping to work his way through Teachers College. He has heard that there are good part-time jobs available as cooks in restaurants, but he has no food preparation skills. This year he has two electives. What should he do about the electives.

- select courses in food preparation so he can obtain part-time jobs more easily..... [*]
- select courses that will be helpful in teaching..... [ ]
- select courses that will be interesting..... [ ]
- select courses that will let him out of school early so the he can start working part-time..... [ ]

Stop: end of test.

Note: Starred items were counted as correct. Items for each scale are:-

Sources: 1,3,5,7,9,11,13,15, 17,19.

Actions: 2,4,6,8,10,12,14,16 18,20.

LOGICAL

PROBLEM SOLVING

This is a test of how well you are able to decide if a series of sentences make up a true argument or not.

Below you will see three sentences. Read them quickly and carefully. Does the argument seem correct? If you decide that the third sentence is the correct conclusion for the argument mark the box labelled true.

If you do not agree that the third sentence correctly follows the first two then mark the false box.

	True	False
Some A are B.		
No C are B.		
Therefore, some A are not C.	☐	☐

In the above sample the true box is scored which indicates that 'some A are not C' is the correct conclusion when you are told that 'some A are B' and 'no C are B'.

Do not draw diagrams to help you answer. Mark your choice by filling in the box you choose. If you have any questions ask them now.

Stop here~

Wait for directions.

		T	F
1.	Some B are not C. Some A are not B Therefore, all A are C		*
2.	No wingless creature can fly Some animals are wingless Therefore, some animals cannot fly	*	
3.	Some fathers are not parents No fathers are electricians Therefore, no electricians are parents.		*
4.	No B are C Some A are not B. Therefore, no A are C.		*
5.	Some criminals are sick All criminals are law breakers Therefore, some lawbreakers are sick	*	
6.	No primates are mammals Some mammals are gorillas Therefore, some gorillas are not primates	*	
7.	All B are A Some C are B Therefore, some A are C	*	
8.	Some apples are oranges No fruit are oranges Therefore, some apples are not fruit	*	
9.	All felines are animals All cats are animals Therefore, all cats are felines		*
10.	No males are happy Some men are not males Therefore, no men are happy		*
11.	Some mongoloids are professors All mongoloids are carpenters Therefore, some carpenters are professors	*	
12.	No single people are husbands Some women are not single Therefore, no women are husbands		*
13.	No C are B Some B are A Therefore, some A are not C	*	
14.	Some puddings are not foods Some plants are not puddings Therefore, all plants are food		*
15.	Some Americans are not Chinese No Americans are Martians Therefore, no Martians are Chinese		*
16.	Some humans are Jews No Moslems are Jews Therefore, some humans are not Moslems	*	
17.	All A are B All C are B Therefore, all A are C		*
18.	All mansions are buildings Some houses are mansions Therefore, some buildings are houses	*	
19.	Some B are A All B are C Therefore, some C are A	*	
20.	Some musicians are not artists Some painters are not musicians Therefore, all painters are artists		*
21.	Some are not C No B are A Therefore, no A are C		*
22.	All zombies are students Some elephants are zombies Therefore, some students are elephants	*	
23.	All rectangles are squares All circles are squares Therefore, all rectangles are circles		*
24.	Some elephants are female No frogs are female Therefore, some elephants are not frogs	*	

Stop here~

Wait for

directions.

Note: Correct answers are starred for each item.

Individual scales are:

Symbolic: Numbers 1,4,7,13,17,19,

Familiar: Numbers 2,5,9,12,15,16, 20,24.

Biased : Numbers 3,6,8,10,11,14, 23.

HOW DO I MAKE DECISIONS?

The first section of this questionnaire is designed to find out how you go about making important decisions in your life. Some of these decisions, for example, might be: to go to university or not; to decide on a career; or to take job X vs. Y. We believe that regardless of what the decision is about, each person has his or her own unique way of going about making decisions. We also believe that there is no one best way for everybody, and that you have probably learned to rely on a way which works best for you, based on your past experiences.

Before filling out this section, think about how you have made these important decisions in the past, or about how you are handling decisions with which you are currently confronted. Try to get a picture of how you typically or characteristically make decisions. Then go ahead and respond to the statements below in terms of how you feel. Remember, we don't think there is a single best way for everybody, so there are no "right" or "wrong" answers.

Beside each question you will see two boxes. Fill in the box under "A" if you Agree with the statement, or "D" if you Disagree with it. For a statement to be true of you, it doesn't always have to be the case, but more often than not.

		Agree	Disagree
1.	I am very systematic when I go about making an important decision	☐	☐
2.	I often make a decision which is right for me without knowing why I made the decision.	☐	☐
3.	When I make a decision it is important to me what my friends think about it	☐	☐
4.	I rarely make an important decision without gathering all the information I can find	☐	☐
5.	Even on important decisons I make up my mind pretty quickly	☐	☐
6.	I like to have someone to steer me in the right direction when I am faced with an important decision.	☐	☐
7.	When I make a decison I consider its effect on other decisions I will have to make later on	☐	☐
8.	When I make a decision I just trust my inner feelings and reactions	☐	☐
9.	I really have a hard time making important decisions without help	☐	☐
10.	When I need to make a decision I take my time and think it through carefully	☐	☐
11.	I often decide on something without checking it out and getting the facts	☐	☐
12.	I often make decisions based on what other people think, rather than on what I would really like to do	☐	☐
13.	When an important decision is coming up, I look far enough ahead so I'll have enough time to plan and think it through before I have to act	☐	☐
14.	I don't really think about the decision; it's in the back of my mind for a while, then suddenly it will hit me and I know what I will do	☐	☐
15.	I rarely make a decision wihout talking to a close friend first	☐	☐
16.	I double-check my information sources to be sure I have the right facts before deciding	☐	☐
17.	In coming to a decision about something I usually use my imagination or fantasise to see how I would feel if I did it.	☐	☐
18.	I put off making many decisions because thinking about them makes me uneasy	☐	☐
19.	Before I do anything important, I have a carefully worked out plan	☐	☐
20.	I don't have to have a rational reason for most decisions I make	☐	☐

	Agree	Disagree
21. I seem to need a lot of encouragement and support from others when I make a decisions	☐	☐
22. I don't make decisions hastily because I want to be sure I make the right decision	☐	☐
23. I make decisions pretty creatively, following my own inner instinct	☐	☐
24. There's not much sense in making a decision that is going to make me unpopular	☐	☐
25. Often I see each of my decisions as stages in my progress toward a definite goal	☐	☐
26. I usually make decisions based on how things are for me right now, rather than how they will be in the future	☐	☐
27. I don't have much confidence in my ability to make good decisions, so I usually rely on other people's opinions	☐	☐
28. I like to learn as much as I can about the possible consequences of a decision before I make it	☐	☐
29. A decision is right for me if it feels good when I make it	☐	☐
30. I usually don't have a lot of confidence in my decisions unless my friends give me support on them	☐	☐

End of Section~

Continue overleaf ▶

Note: Only items marked agree were scored.

Scales were (1) Rational: 1, 4, 7, 10, 13, 16, 19, 22, 25, 2

(2) Intuitive: 2, 5, 8, 11, 14, 17, 20, 23, 26 29.

(3) Dependent: 3, 6, 9, 12, 15, 18, 21, 24, 27 30.

BIOGRAPHICAL INFORMATION

Age: ..... years .....months

Subjects	Last Years Final Grade
1. - - - - - - - - - - - - - - - - - -	- - - - - - -
2. - - - - - - - - - - - - - - - - - -	- - - - - - -
3. - - - - - - - - - - - - - - - - - -	- - - - - - -
4. - - - - - - - - - - - - - - - - - -	- - - - - - -
5. - - - - - - - - - - - - - - - - - -	- - - - - - -
6. - - - - - - - - - - - - - - - - - -	- - - - - - -

Do you live: within Palmerston North or Feilding. Yes ☐

No ☐

Father's occupation is - - - - - - - - - - - - - -

He works full time - - - - - - - - - - - - - - - - - - - Yes ☐

No ☐

Mothers occupation is - - - - - - - - - - - -

She works full time - - - - - - - - - - - - - - - - - - Yes ☐

No ☐

If mother is homemaker what was her last work outside the home -

APPENDIX M

CAREER PLANNING

and

DECISION MAKING

CAREER DECISION MAKING

Do you find it easy to make decisions? We are making decisions all the time, but they do vary in difficulty.

Easy Decisions

What will you begin breakfast with?

Orange juice ☐ Grapefruit ☐ Weetbix ☐

What will you wear to the pictures?

Jeans ☐ Skirt & Top ☐ A dress ☐

These two decisions are simple because you have few choices, no really bad effects will happen and you are used to making such decisions daily.

Hard Decisions

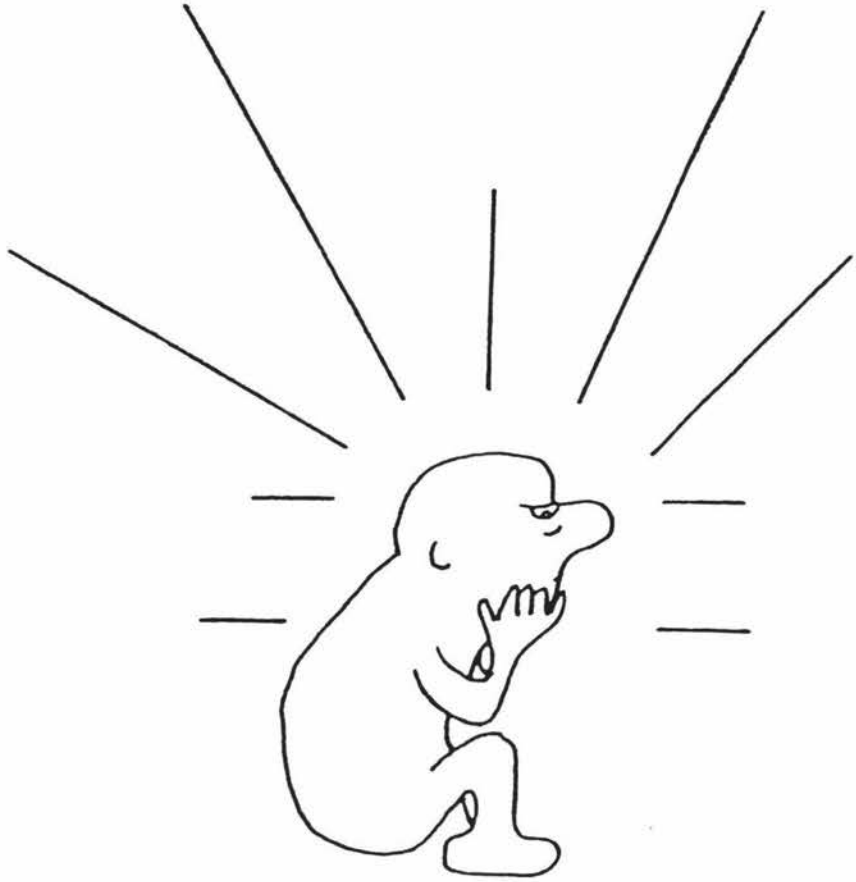
You have to choose where to go for your summer holiday. Would you go to

the river ☐ the beach ☐ the mountains ☐

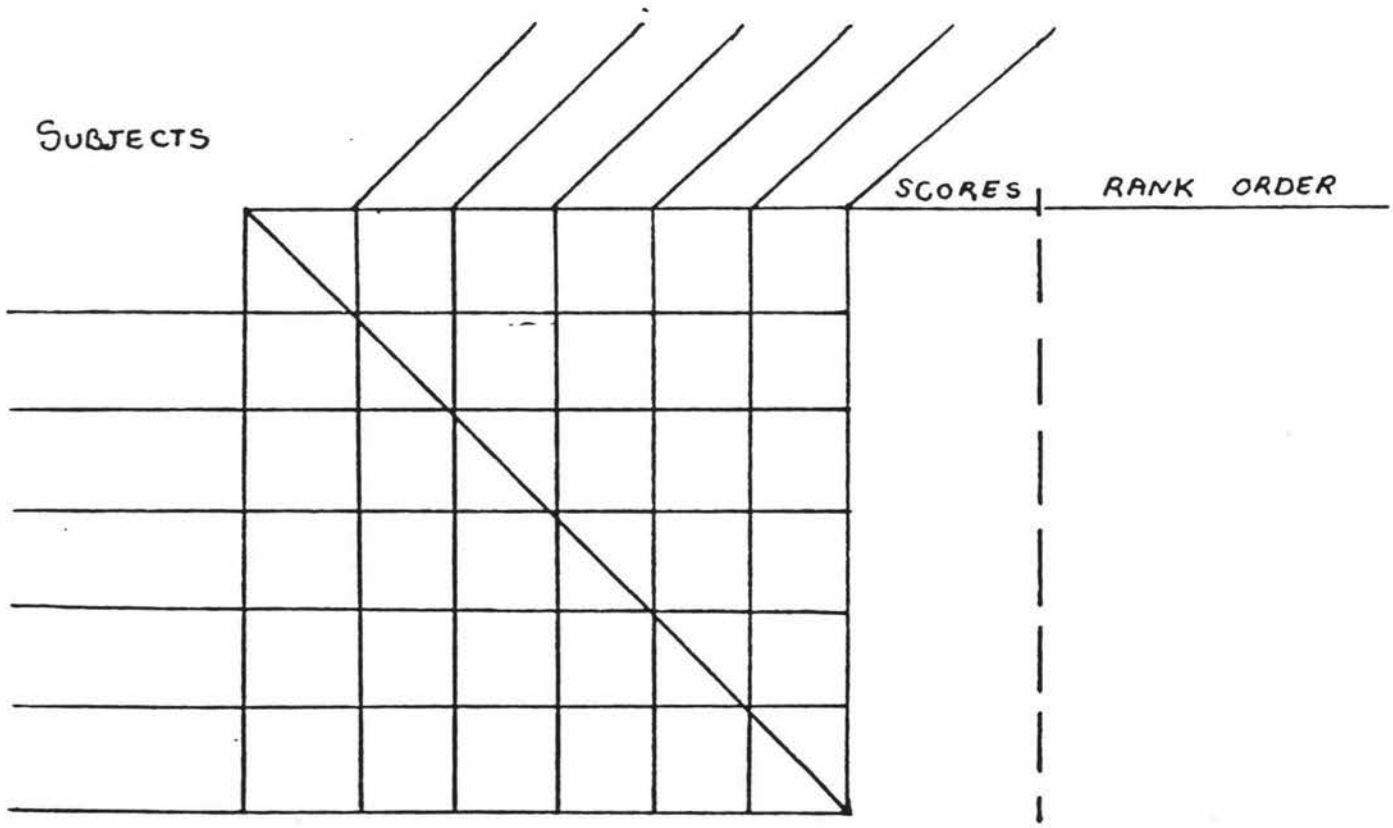
What work will you do when you leave school?

With these decisions you will not always have enough information nor can you forsee the effects of the decision. You must then find out the information you need to decide on a good decision for you.

What sort of factor will influence your choice of work?



Thinking about Yourself



MEGAN'S DAY

Megan is a 4th Former at a Co-ed School. . . . . .

Megan gets up at 7.00 a.m. Almost immediately she must begin to make decisions, and this process continues until she goes to bed at night. Following are some decisions she must make.

1. She must decide what to wear
2. She wonders whether she should walk to school or take a bus.
3. After arriving on campus, she has to decide what she needs from her locker.
4. She goes to her first class, biology, and must decide whether to present her experiment to the class.
5. Between classes she meets a friend who wants to talk, but if she stops for any length of time she will be late for English, where the teacher is strict about punctuality
6. In English she is given a test that requires her to choose one out of five suggested topics on which to write an essay
7. Megan goes to maths class, where her teacher returns a test paper. Megan thinks the test has been marked unfairly and tries to decide whether to discuss the scoring with her teacher.
8. After maths, Megan meets some friends in the hall who ask her to skip her next class and go uptown for a long lunch hour.
9. After lunch, a boy asks Megan to go with him to a school dance on Friday. She has reason to think that another boy whom she likes better plans to ask her.
10. Megan goes to the library to finish an assignment that is due tomorrow. Some close friends sit with her who want to discuss their plans for Saturday.
11. During the next period, in history class the teacher tells Megan off for lack of attention during a film. Megan feels that this is unfair and tries to decide whether to argue with the teacher.
12. In typing class, the teacher praises Megan's speed and accuracy. The teacher says that she is recommending Megan to another teacher who is looking for a typist and is willing to pay $2.50 an hour. Megan could use the money but has been falling behind in her other class work.
13. When Megan gets home at 3.45 p.m. her mother tells her that a neighbour wants her to babysit from 4 to 6 p.m. Megan had planned to study before dinner so that she could go to a film with a friend.
14. At 9.30 p.m. Megan's favourite TV show is on, but she also wants to wash and dry her hair before going to bed at 11 p.m..

A. Pick out what you think were the six most important decisions Megan had to make that day, and write why you think each was important.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

In your discussion group compare your choice of Megans six most important decision with those of your neighbour. Are they different? Try to find reasons for the differences.

GROUP DECISIONS

The last decisions you made were made by you alone. What happens when a group has to make a joint decision. Below is a list of holiday activities which you have to rank from the activity you want to do the most (1) to that which you like least (10). Once you have ranked them for yourself you must then decide which project the group would choose 1st.

	Activity	Rank
1.	Running an outdoor activities camp for primary children	
2.	Managing a Health food shop	
3.	Taking a cruise around the world	
4.	Doing nothing	
5	Working in a fruit juice canning factory	
6.	Digging for Maori artifacts in Northland	
7.	Being a tourist guide at Queenstown Hotels	
8.	Doing active sports for physical fitness	
9.	Putting on an original musical show	
10.	Organising a self-taught class on handicrafts or drama	

The group ranked..... 1st

I ranked..... 1st

Discussion Points:-

TAKING RISKS

As a contestant on a TV game show, you have just won $100. You have the money in your hands. Now the master of ceremonies tells you that you can keep the $100 or you can risk it on the toss of a coin. If you win the coin toss you will get $200; if you lose, you will get nothing. Put an X next to the point in this series where you would stop and keep the money.

___ Would you bet your S100 against the chance to win $200?

___ If you won $200, would you go for $400?

___ If you won $400, would you go for $800?

___ If you won $800, would you go for $1600?

___ If you won $1600, would you go for $3200?

___ If you won $3200, would you go for $6400?

___ If you won $6400, would you go for $12,800

___ If you won $12,800, would you go for $25,600?

___ If you won $25,600, would you go for $51,200?

___ If you won $51,200, would you risk it to win $102,400?

The following actions have one thing in common: a person doing them has some idea of what he or she wants to gain from doing them, and the person is taking some kind of risk. Imagine yourself doing each of the things shown as *Actions*. Decide what you would hope to gain from each action and write it down next to *Possible Gains*. In the next line, write down the risks that you would probably be taking. The first one is done as an example.

Action : Cheating on a test . . . (example)

Possible Gains Passing the test; Impressing the teacher

Possible Risks Being caught cheating and punished; Not learning what was covered by the test.

Action : Driving a car at 90 miles an hour . . . .

Possible Gains _____

Possible Risks _____

Action : Taking a job I am not sure I can do well . . . .

Possible Gains _____

Possible Risks _____

Action : Stealing something from a store . . . . .

Possible Gains _____

Possible Risks _____

Action : Lending money to a friend . . . . .

Possible Gains _____

Possible Risks _____

"Same career, change of career, same career... change of..."

Career choice involves <u>six</u> stages:

Defining the problem

Gathering relevant information about yourself and the world of work

Weighing the evidence

Deciding on a plan or goal, and at least one alternative

Furthering the plans

Reviewing these plans

"WHILE YOU'RE WAITING FOR YOUR SHIP TO COME IN, WHY DON'T YOU DO SOME MAINTENANCE WORK ON THE PIER ?"

DECISION STAGES

We are going to go through these steps for Jane, a typical sixth former.

1. Defining the Problem

Jane, seventeen plans to leave school at the end of the year and wants to do social work in one of the Government social welfare agencies. She does not want to do further full-time study but would consider doing it if she had to do so. She would not mind doing part-time study.

2. Gathering Relevant Information -

JANE

Achievements:	- Four SC passes 'B' in English, 'C's' in Geography, Science, History (failed Maths). School prefect.
Aptitudes:	- Good at explaining things - Gets on well with elderly people - Good at organising herself, and getting things done
Health:	- Average - Wears glasses
Interests:	- Finding out why things happen - The outdoors, does not like being 'cooped up' inside, finds sitting still difficult - Likes people
Expectations:	- To have had an overseas trip by 22. - To be married or single.
Personality:	- Strong minded and forthright - Serious-minded, sure of own standards, tendency to be intolerant of those with other views.
Family background:	- Youngest of four. Two brothers at work - one an urban valuer, one a laboratory technician. Elder sister doing Senior Business Course. - Parents want children to go into a training course that leads to a safe career.
Career information:	- written, eg. Vocational Guidance leaflets, State services Commission leaflets. - spoken, eg. talking to those already in the job, talking to employers.
Information Sources:	- School careers Advisor, Vocational Guidance Counsellor, Employment Service (Labour Dept), Family, Friends, Employers.

3. Weighing the Evidence

Answer the following questions about Jane:

a. Could she reach the academic standard required for social work?

b. What personal qualities has Janet that would fit her for social work?

c. What personal qualities may Jane have to modify or alter if she went into social work?

d. Is Jane being realistic when she wants to go into social work on leaving school?

e. What difficulties will she face getting into social work?

f. What does Jane mean by social work?

4 Deciding on a Plan or Goal

a. What are three ways that Jane could further her plans of getting into social work?

(i)

(ii)

(iii)

b. Choose the one you think is the most appropriate for Jane. Indicate which and give your reasons for this choice.

c. What do you recommend that Jane do next year?

5. Furthering Her Plans

a. What could Jane do to increase her chances of getting into what you have recommended in (b) above.

b. What activities could Jane become involved in to further her chances of getting into social work?

6. Reviewing the Decision

Not yet applicable. Give examples of situations which may cause Jane to change her decision.

PERSONAL

DECISION MAKING

Having taken you through the six steps needed to make decisions it is now time for you to apply them to a decision of your own. Perhaps choice of subjects for the Fifth form, a holiday job, or even your career could be the problem most relevant to you right now.
Choose a problem and follow the steps below:-

1. Defining the Problem

_____

_____

_____

2. Gathering Relevant Information

List some of the more important facts about yourself under the following headings:

a. Achievements _____

_____

b. Aptitudes _____

_____

c. Values _____

_____

d. Interests _____

_____

e. Work experience _____

_____

f. Family Background _____

_____

g. Health _____

_____

h. Personality _____

_____

i. Career information - do you have all the information you require? If not, what do you need?

_____

_____

3. Weighing the Evidence

List any factors from (2) above which will be of special importance in your choice of career.

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

4. Deciding on a Plan or Goal

a. If you can, write your plans for further schooling, training and employment, taking (2) and (3) into account.

School _____

_____

Training _____

_____

Employment _____

_____

b. If you cannot do the above, have a talk too:

- Your Careers Adviser
- Your Guidance Counsellor
- A Vocational Guidance Officer

5. Furthering Your Plans

If you answered (a) above, write any other way that you can further your plans. Some who answered (b) will also be able to do this.

_____

_____

Why should we make decisions anyway?

1. Making decisions gives us control over our lives

2. Decisions are the product of self-understanding and factual knowledge

3. Values beliefs, and a philosophy of life are essential components of the deciding self.

4. When a belief conflicts with another belief (or with our behavior), one or the other must change.

5. Each of us is responsible for the decisions he or she makes.

6. Every decision is related to other decisions, past and future

7. Risk taking is a normal part of living.

APPENDIX N

WOMEN IN WORK

PEOPLE at WORK

MEN'S JOBS and WOMEN'S JOBS.

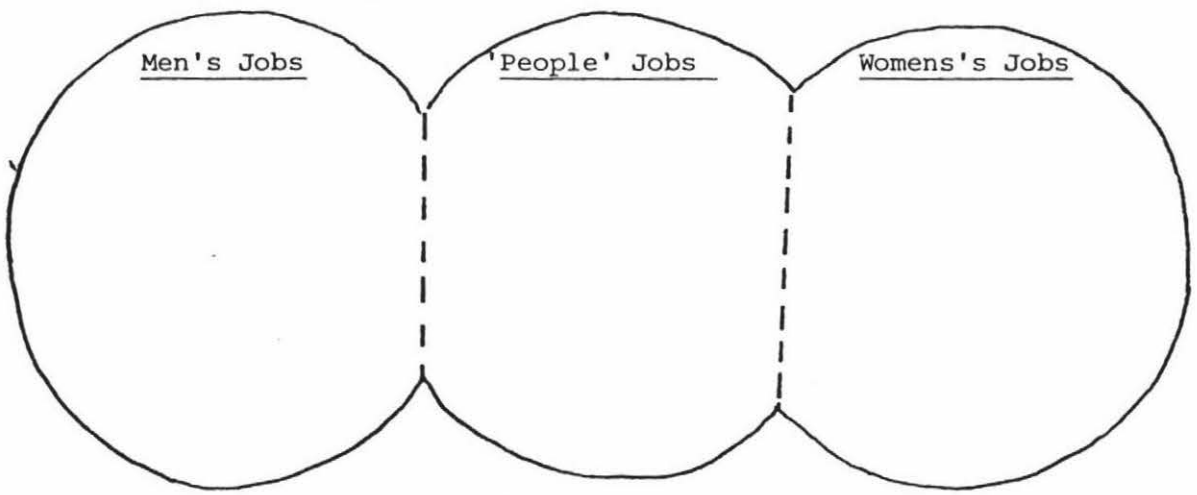
If you heard someone say 'I'm going to see a solicitor would you imagine the solicitor to be a man or a woman?

Who is more likely to take up hairdressing as a career: a girl or a boy?

Do we have fixed ideas about what are men's jobs and what are womens's jobs?

What sex would you expect the people in these jobs to be? Nurse..... Miner.....
Airline pilot..... Secretary.....

Think of as many jobs as you can and list them in the circles below:



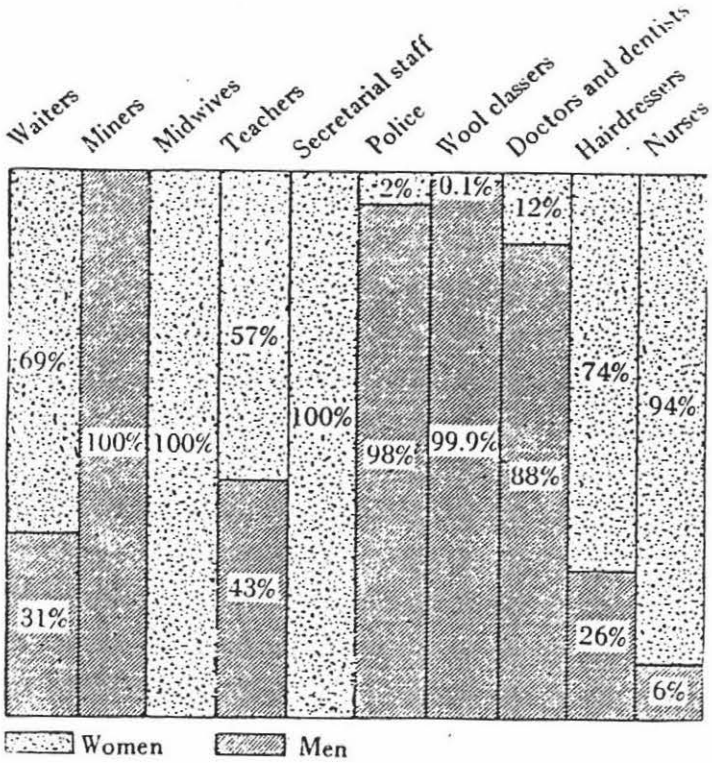
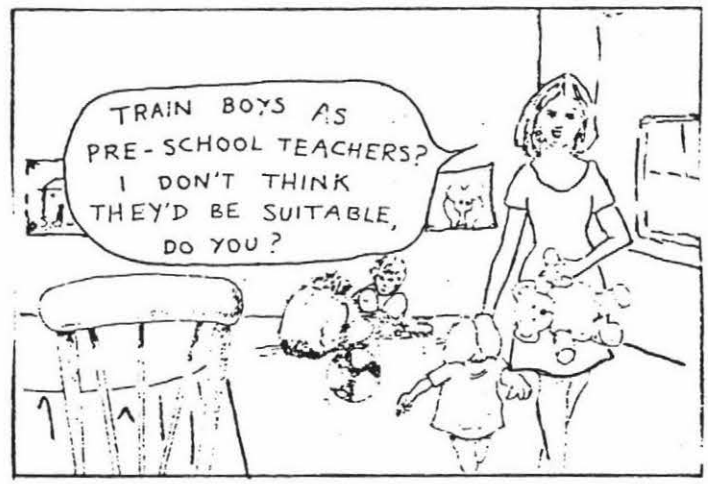


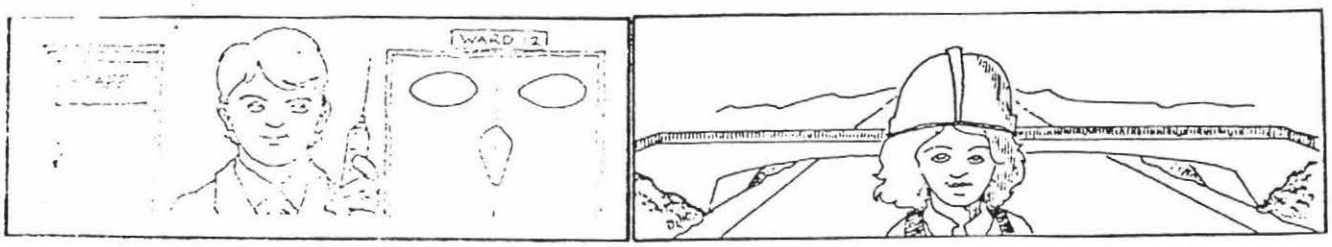
Chart showing the percentage of men and women in different occupations.

List reasons why some jobs on the chart are done entirely or mainly by men or women;

Some jobs are done by men or women for practical reasons, but often as in the pictures the reasons given are due to social custom.
What do you think the reasons are in these illustrations? ⟶



Changing Roles



Stephen is a nurse...

'I used to be an ambulance driver but the part I enjoyed most was the first aid. Gradually I found that I wanted to be more involved with the patients-helping them to recover, rather than just patching them up and handing them over to the hospital. So I applied for nursing training at a big hospital,and qualified. At first it was odd,working alongside so many women,especially as many of them were better at it than I was. But I really enjoyed the work,and the patients liked having a male nurse.I've been doing very well in my new career,and soon I hope to be promoted to matron. My only regret is that I didn't go into it straight from school.'

Stephanie is a civil engineer...

'When I told people what I wanted to do everyone thought I must be mad! But I went to university -there were me and thirty guys on the course - and trained as a civil engineer. Now I've got a good job with a big company. We build bridges, motorways,tunnels,dams and big schemes of all kinds. It's all very interesting and exciting - every day there's a new problem to be solved. Of course I'm the only woman on the site - but all that means is that the men don't swear so much when I'm around. I love my work. You couldn't stick me behind a desk,no matter how warm and comfortable it was: I'd be bored to death....'

Write down the jobs that you think fit into the following categories:

Jobs that can only be done by women.

Jobs that are mainly done by men but that could be done as well by women.

Jobs that are mainly done by women but that could be done as well by men.

Jobs that can only be done by men.

In New Zealand,there are lots of jobs which women,for a variety of reasons, don't do. In other countries,things are different.
In Israel,for instance,girls do military training in the same way as boys,and learn how to be soldiers. In Russia,women are road menders. The Russians don't think the work is too heavy for women! Russian women don't only share in the heavy manual work. There are more of them in professional and scientific jobs too.
Even in New Zealand there have been times in history when women have done jobs usually taken by men.During the war,women worked on farms and in the heavy industry because the men were away fighting.
Here are some charts showing the proportion of women among doctors,scientists, and engineers in Australia and Russia.

What do you think these charts show?

That Russian women are more intellegent than Australian women?

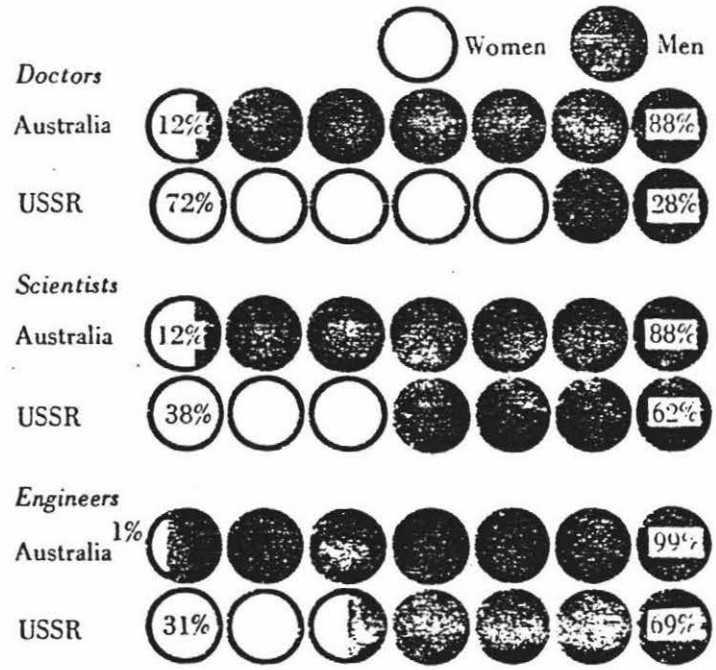
.....

That women have more opportunities to train for these jobs in Russia than in Australia?.....

.....

Why aren't there more women doctors in countries such as Australia or New Zealand?

.....



TOP JOBS

Now for some quick questions.Do you know the answers? If you're not sure make a guess.

How many women are Cabinet Ministers at present?.....

How many women MP's are there in the Parliament?.....

How many women judges are there today?.....

How many women are New Zealand Ambassadors to other countries?.....

How many women are bishops?.....

How many women are generals?.....

How many countries have had a woman Prime Minister? Can you name them?.....

.....

What qualities do you need to get to the top? After all there are very <u>few men</u> who are judges and generals,if you look at them in relation to the total workforce.

Lets list these special qualities which help people gain top jobs.

4.....

3.....

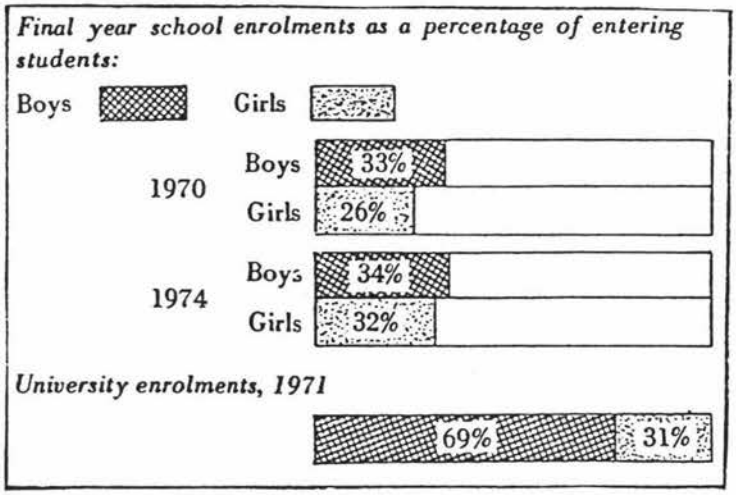
2.....

1.....

Man = Ability = Woman

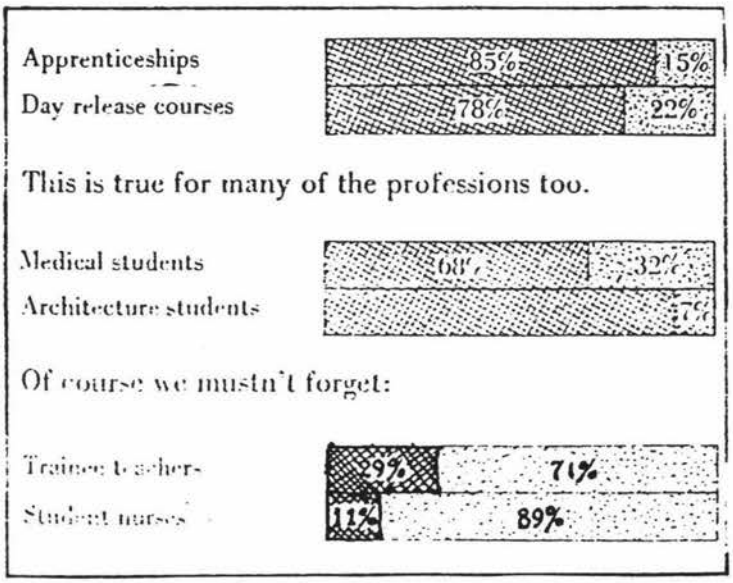
From the type of qualifications that women get you might feel that the sexes are not equal in ability!

Looking at the diagram: ⟶
Why are more girls staying on at school in 1974 than 1970?



Why do you think more boys than girls go onto University?

Why are there more women than men enrolled as Extramural students (who are generally over 25 years and unable to attend daily classes), at Massey University?



At all levels girls seem to find it more difficult to get training than boys.
← Look at this diagram:
Overall, do you think girls have equal opportunity to get the training they need for the top jobs?

Opportunity or Predjudice?

"REVELSTOKE"
VAUCLUSE

Sir,

While arguments about sex equality may look convincing on paper, I know that the first time I see that the pilot of my Jumbo jet is a woman, I shall immediately transfer to another plane. And I expect that most of the other passengers will follow suit.

Sincerely,
Blanche Portesque

What do you think of the two sets of comments about woman workers given on the left?

Are any of these comments true for you?

How many of the comments are social beliefs rather than a statement of fact?

Can you think of other examples of such predjudice? List them:

Many women,both married and single, go out to work. But what jobs do they tend to do? This advertisement could come out of your local newspaper.

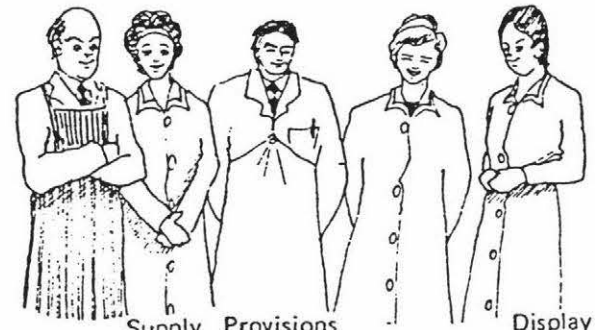
What do you notice about the men's jobs that are shown?

What do you notice about the women's jobs?

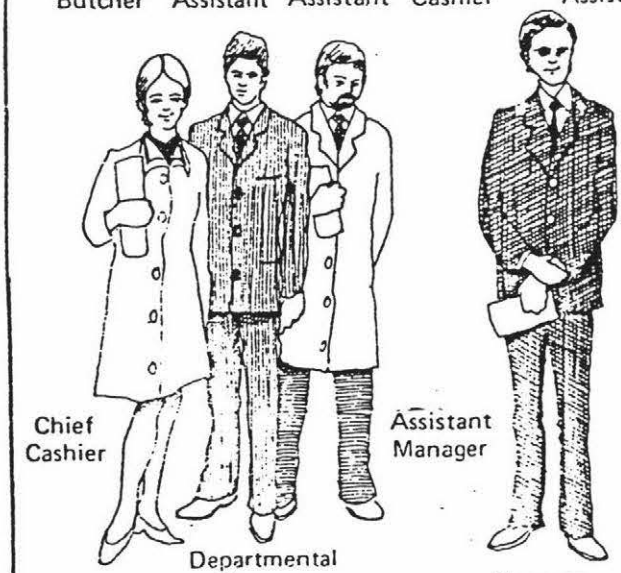
Would any of the 'women's' jobs that are shown,lead to a woman becoming the manager? Give your reasons for your answer.

Every Colesworth's Retail Store has a team just like this one

Cleaner · Checkout Operator · Customer Service · Stock Supervisor · Chief Clerk · Deputy Manager



Butcher · Supply Assistant · Provisions Assistant · Cashier · Display Assistant



Chief Cashier · Departmental Manager · Assistant Manager · Manager

Are you looking for an interesting well-paid full or part-time job? You'll find just the thing at your local Colesworth's Retail Store. For details of opportunities call at your local branch and ask to see the Manager or the Personnel Officer.

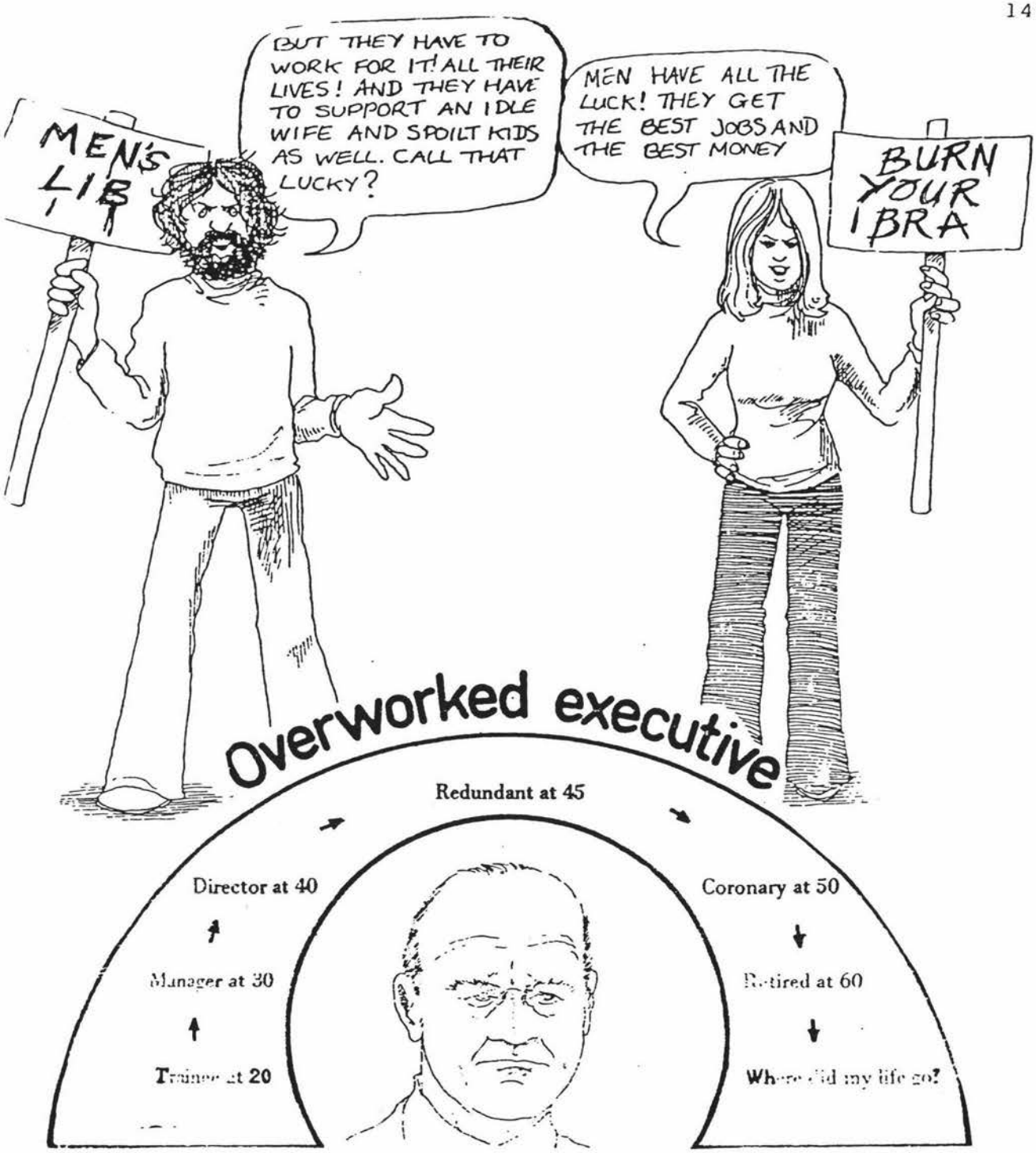
AMBITION

Ambition is a difficult thing to measure. Look at the picture on the left and see if you can decide where it comes from. Write your answer below:

Are boys more often urged to 'get on'? To get a good job and get to the top? You often read in the newspapers about men who are desribed as 'whizz-kids' because they have done exceptionally well at a young age - made a million before they are 30, for example. How many women make a million before they are 30? Or ever?

Look at the picture on the left. What is the effect of these kinds of comments?

Do you agree with them? Say why?



Many top jobs demand a great deal from an ambitious man or woman. You may find you have less spare time,less family life and more job responsibility.

Would this price be worth it for you?List the reasons why it would/wouldn't be worth the price for you:

Thoughts to take home

Here is a questionnaire designed to test your own attitudes towards women, work and ambition. Work out which answers you think are true or partly true, and which you think are false. Can you think of any additional answers?

Girls leave school early because
...they are not as clever as boys;
...they are going to get married anyway;
...parents discourage them from staying on;
...girls give up easily.

Girls don't want careers because
...career women are unfemine;
...they'll get married soon;
...it's too much like hard work;
...no-one wants a woman boss.

Women don't go for top jobs because:
...they are not as clever as men;
...they'll get married soon;
...they don't like responsibil-ity;
...they won't get them.

Women don't get promoted to top jobs because:
...they aren't as good at giving orders as men;
...they'll get married soon;
...men don't like clever women;
...women are best at supportive jobs.

Men do better than women because:
...men work harder than women;
...they'll get married soon;
...men are sensible not fea er-brained;
...men are more ruthless.

Married men get top jobs because;
...they work hard;
...they have to earn as much as they can;
...nobody else wants top jobs;
...someone else is looking after their home and children.

Married women don't get top jobs because;
...they have to look after home and children;
...they don't work hard enough;
...they don't want them;
...people don't like working for a woman.

CAREER PLANNING TEST

This is a test of your knowledge of how to plan wisely for a career; how to get needed career information and how to make career decisions. Look at the sample item.

Linda, a ninth-grade student, thinks she would like to become a librarian. At this time, what would be the best thing for her to do to help make up her mind?

Read newspaper want ads to see what types of librarian positions are available.....	☐ 1
Read Wallace's Information Retrieval Systems.....	☐ 2
Work as a library assistant at school.....	☐ 3
Survey college catalogues to see what courses in library science are like.....	☐ 4

The space beside 3 has been marked for the sample item to indicate that working as a library assistant at school will give Linda more decision-making information for her career than the other activities. While each of the other alternatives would provide Linda with some information, none would be as useful to her as that of alternative 3.

When you are told to begin work, read each item and then mark your selected answer by filling in the appropriate space. Mark only one choice for each question. If you change your mind after marking a choice, erase completely the wrong choice and fill in the space for the alternative you want. If you are not sure of the answer to a question, make your best guess. Do not spend too much time trying to answer any one question.

DO NOT MARK IN THIS TEST BOOKLET. MARK ALL YOUR ANSWERS ON YOUR ANSWER SHEET.

You will have 20 minutes to work on this test. If you finish before time is up, you may go back to check your work. Please be courteous to those who have not finished by being quiet and remaining seated.

If you have questions, ask them now.

Stop here: Wait for instructions.

1. From the results of several tests, Judy knows that her major interest is in working out-of-doors. Where can she find information on the varities of jobs that involve working out-of-doors.

Dictionary of Occupational Titles...	*	1
Want ads in the newspaper.....		2
her physical education teacher.....		3
her friends.....		4

2. Robert is graduating from high school in six months. He is unsure about any career. He is into sports now and does not have much time for anything else. What is most important for him to do?

ask his counsellor what to do.....		1
find out if he is eligible for the army.....		2
talk to the track coach and see if he has any ideas.....		3
think about what he wants and begin making plans.....	*	4

3. Rachel, a Fourth Former is considering entering the high school programme in printing because she heard that it is a good trade, but she would like to know more about it. Which is the least appropriate way to find out about it?

arrange to watch a printer all day.....		1
read about occupations in printing.....		2
watch a film about printing.....		3
learn about printing after she is in the programme.....	*	4

4. Jerry is in the middle of the 6th Form programme in motor mechanics and body repair. In 18 months he will be able to get a good job in a motor body shop. However, his father just died and his family is going on welfare. There are several possibilities for Jerry. Which would be best?

stay in school and finish his programme.....		1
arrange to go to school part-time and work part-time.....	*	2
let his mother decide.....		3
take the best job he can get right now.....		4

5. Henry is a 7th Former from a large family. He is hoping to go to a university even though it will cost him $2000 a year. He has heard about loans and scholarships. From whom he is most likely to get accurate information about available financial aid?

his social science teacher.....		1
the admissions officer in the University.....	*	2
a friend at school.....		3
his banker.....		4

6. Joan is in the 4th Form and thinks she wants to go to University. She is making B's in her courses. She will sit School Certificate next year and is now being asked to plan a programme. What should she take?

courses in which she will make high grades.....		1
courses in which she will have friends from her present classes..		2
courses which meet university requirements.....	*	3
courses which will let her out of school early.....		4

7. John wants to find out how good he is at carpentry relative to other fellows of his age. What would be his most accurate source of information?

a job sample on carpentry.....		1
his shop teacher.....		2
his scores on a national carpentry test.....	*	3
the opinion of his friends.....		4

8. Virginia, a 6th Former thinks she wants to be an artist or a teacher. She is taking some art courses in addition to required courses. She is a B student. What would NOT help her to decide whether to go to art school or teachers college?

do more baby-sitting so she can see how she likes children.....		1
take an art aptitude test.....		2
discuss the matter with her parents and counsellor.....		3
find out the schools to which her friends are going.....	*	4

Go onto next page ▶

Kate is starting 4th Form. She is trying to get ideas about occupations which she is likely to enjoy and might enter when she finishes school. What would be the best source of ideas about occupations to explore?

- Employment and Vocational Guidance Job Leaflets..... [*] 1
- vocational interest tests..... [ ] 2
- job ads in the local newspaper..... [ ] 3
- Dictionary of Occupational Titles.. [ ] 4

Allan had wanted to be a doctor. His grades in high school were C+, but in two years of University he has made D's and F's. Allan is unsure whether he should continue in Pre-med. What should he do?

- find out whether he can take the courses over in order to make higher grades..... [ ] 1
- explore the possibility of entering a related, but easier profession such as nursing, medical technology or paramedics..... [*] 2
- find out what his chances of becoming a doctor are..... [ ] 3
- decide whether to stay in Unversity if he drops pre-med..... [ ] 4

Rod is going to college part-time next year. He cannot decide between the Community College and University. He wants to know which will allow him to take the widest variety of courses at night. Where is he most likely to get accurate information?

- from his high school counsellor... [ ] 1
- from the two colleges' catalogues.. [ ] 2
- from the two colleges' admissions counsellors..... [*] 3
- from a Guide to Tertiary Institutions..... [ ] 4

Allison is in her second year of college. She hopes to enter government foreign service mostly because she enjoys the work, but also because she likes to travel. Yesterday her friend learned that both of them could train to be airline stewardesses right away because of a sudden need for stewardesses. Allison is unsure whether to continue college until she graduates or enter training to be a stewardess. What would be best for her to do?

- examine the decision with a counsellor..... [*] 1
- become a stewardess since she wants to travel..... [ ] 2
- finish college and enter government foreign service as she had planned..... [ ] 3
- find out what her parents want her to do..... [ ] 4

13. Ian, a 6th Former, is planning his future. He wants to try out his ideas on someone who knows about good plans. Who is likely to be most helpful?

- his guidance counsellor..... [*] 1
- his coach..... [ ] 2
- his neighbour..... [ ] 3
- his buddy who is at university.. [ ] 4

14. Moana is in the 5th Form. She wants to explore occupations which she might enter. Which of the following should she do?

- wait until she is in 7th Form before considering work..... [ ] 1
- ask her friends what they are considering..... [ ] 2
- take a job after school to see if she likes that kind of work..... [ ] 3
- find out which occupations use the skills she has..... [*] 4

15. Wiki, a 7th Former has written several outstanding short stories and has won school contests for his writing. Now he is wondering how good he is and whether he should try to be a writer. How can he obtain this information?

- ask the opinion of his teachers..... [ ] 1
- he cannot obtain it..... [ ] 2
- get a job with a newspaper in order to see how well he does ..... [ ] 3
- submit some stories for publication in order to get professional reactions..... [*] 4

16. Alex, a 7th Former, has decided to be a plumber. He knows he has the ability to enter the apprentice programme and he knows he would like plumbing. What is Alex's next step in his career plan?

- apply to the plumber's apprentice programme and take the test..... [*] 1
- find out about the availability of plumbing jobs..... [ ] 2
- take some vocational tests to be sure about plumbing..... [ ] 3
- discuss his choice with a counsellor. [ ] 4

17. Doug is graduating from high school in June. He wants to find out what post-high school job training programmes are available. What should he do?

- look in the Yellow Pages..... [ ] 1
- read his local Community College and Employment Service Leaflets..... [ ] 2
- discuss the matter with his high school counsellor..... [*] 3
- ask his friends for suggestions..... [ ] 4

Go onto next page ▶

18. Harry was planning to be a bricklayer and he had lined up a job for the coming year. However, over the summer he had scarlet fever with complications. Now he has a heart disorder and cannot do heavy work. What should he do?

- resign himself to being an invalid..... ☐ 1
- explore the possibility of find a job that involves building but does not require heavy work..... [*] 2
- take the bricklayer's job anyway..... ☐ 3
- go to University since he will need a degree if he cannot do heavy work.... ☐ 4

19. Audrey, a 7th Former, is thinking about becoming an accountant. She is good at maths and is trying to find out how she would like accounting. What is <u>least</u> likely to help her in finding out?

- reading about accountants in the Vocational Guidance Service Pamphlets..... ☐ 1
- looking at want ads for accountants.... [*] 2
- doing a work sample containing different accounting problems..... ☐ 3
- watching a movie about accounting..... ☐ 4

20. Caroline is making out her 5th Form programme. She is not sure about what she will do after she graduates, or what she is good at. What kind of courses should she take?

- courses in different areas like business, literature and science..... [*] 1
- only courses in which she will make high grades..... ☐ 2
- courses that her friends are taking... ☐ 3
- courses that will prepare her for university..... ☐ 4

Name:

Form:

Note: Those answers starred were marked correct. Items for each scale are:

Sources: 1,3,5,7,9,11,13 15,17,19.

Actions: 2,4,6,8,10,12,1 16,18,20

Stop: end of test.

Name .....

Rose is 16 years of age and in the Sixth Form of a girls school. She easily passed six subjects in School Certificate (Geography, Maths, Science, English were B's, French and Music were C's). She has chosen to study English, Maths, Physics, Chemistry and Biology this year for University Entrance.

Rose is an independent girl with three younger sisters. Her father is a Valuer and her mother an accountant. She gets on well with her family but likes to socialise with friends her own age. Her health is good and she regularly plays badminton. She is practical and does her own sewing and cooks for her family. She likes change in both where she is and the people she is with.

Rose is interested in reading Science Fiction, playing chess and electronics (that is computers and electronic gadgets such as keyboards). She does not want to stay on at school but would like a job that will keep her interest and pay well enough to let her travel sometimes.

Explain how Rose should go about making decisions on her working life. You may invent any facts you are not given above to help you. Write your answer below and over the page if necessary.

APPENDIX Q

Table 10: Showing Pearson correlation coefficients for dependent variables (two tailed).

DECISION TEST	PLANNING (POST-TEST)	
	Sources	Actions
Define Problem	0.0637 (31) p=0.634	0.2043 (31) p=0.270
Sources	0.1043 (31) p=0.576	-0.0913 (31) p=0.626
Alternatives	0.1182 (31) p=0.526	0.3229 (31) p=0.076
Actions	-0.1211 (31) p=0.516	0.0659 (31) p=0.724

APPENDIX R

RATER NUMBER - - - - - - - - -

RATING OF CAREER DECISION MAKING SKILLS

SUBJECT NUMBER	PROBLEM DEFINITION	INFO SOURCES	GENERATING ALTERNATIVES	ACTION TO GOAL	DECISION STYLES
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					
89					
90					
91					
92					
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102					
103					
104					
105					
106					
107					
108					
109					

NOTES TO RATERS

	Nil	Some coverage	Good coverage
Rating Scale	1	2	3
(for Factors 1-4).	'_____'	'_____'	'_____'
		(aware but not quite correct)	(mentioned correctly)

1. Probem Definition: Clearly sets out the main factors to be considered for the career decision Rose is to make. e.g. knows abilities and skills.

2. Information sources: has a knowledge of sources of information to consult in order to obtain career related knowledge. Types of relevant information would be on personal achievements, aptitudes, interests, expectations, family background, health as well as that relate to specific jobs. Sources could be school careers advisors, Vocational Guidance and Employment Service Family, Friends,Employers, Libraries etc.

3. Generating Alternatives: Suggests more than one alternative career choice and consequences (i.e. advantages, disadvantages).

4. Action toward achieving goal or making a decision : The practical steps needed towards implementing the choice. That is how to go about becoming a successful candidate for the desired job i.e. training, experience etc.

5 Decision style: Assess according to the definitions below the type of decision style displayed by the subjects, using (1) Rational, (2) Intuitive, (3) Dependent.

1: Rational decision makers are systematic, consider all the information they have and look carefully at the consequences of their actions. They tend to plan ahead and make considered decisions.

2: Intuitive decision makers make quick decisions without carefully checking facts. They make decisions for the present and rely on inner feelings to test the 'rightness' of a decision. Their decision making is creative and they often can't give reasons for decisions.

3: Dependent decision makers tend to use the opinions of others to make their choices. They need support for their decisions and will often put off making any decision until forced into one by pressure of friends.