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THE VOCATIONAL DEVELOPMENT OF A FIFTH FORM
WORK EXPLORATION CLASS

A thesis presented in partial fulfilment
of the requirements for the
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ABSTRACT

The development of vocational maturity in a fifth form Work Exploration class was compared to that of a similar group of students who did not belong to the Work Exploration class. Vocational maturity was measured by the Crites Vocational Attitude Test, by subjective assessment in an informal interview situation, and by the Vocational Development Questionnaire which was developed specially for this study. After two school terms the results of the Crites Vocational Attitude Test and the interview showed that the experimental group (the Work Exploration Class) had developed significantly more in vocational maturity than had the control group. The Vocational Development Questionnaire did not show the same trend, therefore in its present state it is not a valid measure of vocational maturity.

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LITERATURE REVIEW

The theoretical basis for this study of vocational development comes from the theories of vocational choice and career development. There are several different points of view as to how a person comes to make a career decision. Osipow (1973)¹ has summarized some of the main approaches to career development as follows:

- (1) The Trait and Factor Approach. This is the oldest approach to vocational choice and it is comprised of a straightforward matching of an individual's abilities and interests with the vocational opportunities in the world at a particular time. Proponents of this approach were - Parsons (1909), Hall (1928) and Kitson (1925). The Trait and Factor approach led to the development of such vocational interest tests as the Strong Vocational Interest Blank and the Kuder Preference Record, and aptitude tests. Although these tests have limited uses they are still often used as a help in giving vocational guidance. Most contemporary researchers feel that the Trait and Factor approach alone, is not enough to explain how a person makes a vocational choice.
- (2) The Sociological Approach. This model is otherwise known as the "accident" or "reality" theory of vocational choice. The approach is based on the notion that circumstances beyond the control of the individual direct him to make career choices. The principal task of

1. OSIPOW, S.H.
Theories of Career Development. 2nd ed.
New York, Appleton Century Crofts 1973
pp 10 and 11

anyone in the role of helping youth with vocational decisions is the development of techniques which will enable youth to cope effectively with the environment. Osipow names Caplow (1954), Hollinshead (1949) and Miller and Form (1951) as proponents of this model. Other more recent researchers to use a sociological model of vocational choice are Keil et al (1966) and Musgrove (1967) who have guided the theory away from the "accident" model towards a more realistic model which encompasses personal as well as sociological factors. In writing about the sociological model Sofer states that it is "correct to the extent that it stresses the importance of external factors in the choice process but wrong in that it neglects the fact that the way in which the person takes account of external factors depends on the way in which he perceives and reacts to them."²

- (3) The Self Concept Approach or Developmental Approach. The central ideas behind this approach are that individuals develop more clearly defined self concepts as they age, that people develop images of the occupational world which they compare with their self image when trying to make a career decision, and that the adequacy of an eventual career decision is based on the similarity between the individual's self concept and his vocational concept of the career he eventually chooses. Researchers who have used this approach include Buehler (1933), Samler (1953), Ginzberg et al (1951), and Super (1957). The work of Rogers and other client

2. SOFER, C.
Introduction In W.M. Williams ed. Occupational Choice. London, Allen and Unwin Ltd 1974.

centred counsellors has contributed much to the model. Coming to a vocational decision in this model, as in the Sociological model, is seen as a process. The Developmental approach, however, assumes that this process is largely irreversible and that compromise is an essential aspect of every choice. Different writers have seen different stages in the process. Ginzberg (1951)³ postulates the following stages in making a vocational decision.

- (i) Fantasy choices (Before 11 years of age)
- (ii) Tentative choices (From 11 years to 17 years of age)
- (iii) Realistic choices (From 17 years onwards).

Super's theory (1963)⁴ is very similar to that proposed by Ginzberg. It proposes that a person strives to build up his self concept by choosing the occupation he sees as most likely to permit him self expression. The most comprehensive work concerning vocational maturity has been conducted by Super and his associates. Super defines vocational maturity in terms of norms. He analysed the life stages in vocational development and produced a list of "Attitudes and Behaviours Relevant to Vocational Developmental Tasks", which are summarized here:

- (i) Crystallization - from 14 to 18 years of age. Crystallization includes differentiation of interests and values, awareness of contingencies which may affect goals, and formulation of a generalized preference.

- 3. GINZBERG, E. et al.
Occupational Choice: An approach to a General Theory. U.S.A., Colombia University Press. 1951
- 4. SUPER, D.E.
Vocational development in adolescence and early childhood. In Super, D.E. et al. Career Development: Self Concept Theory. New York, College Entrance Examination Board. 1963. p 138

- (ii) Specification - from 18 to 21 years of age. Specification includes the use of resources in specification, specification of a vocational preference and possession of information concerning the preferred occupation.
- (iii) Implementation - from 21 to 24 years of age. This stage includes planning to implement the preference, executing plans to qualify for entry, and obtaining an entry job.
- (iv) Stabilization - from 25 to 35 years of age. This stage includes planning for stabilization, becoming qualified for a regular, stable job or accepting the inevitability of instability.
- (v) Consolidation - from 35 years of age onwards. This stage includes possession of information as to how to consolidate and advance, planning for consolidation and advancement and, finally, executing consolidation and advancement plans.

As a result of researching vocational maturity, Super and Overstreet (1960)⁵ concluded that vocational maturity was related to intelligence and that age was of less importance. They also found that environmental factors played a part, for instance, subjects' vocational maturity index correlated positively with parental occupation level, school curriculum, the amount of "cultural stimulation", and negatively with urban background and Protestantism. Hollander (1971) also found that "Increasing intellectual ability, assessed by scholastic aptitude measures,

- 5. SUPER, D.E. and OVERSTREET, P.L.
The Vocational Maturity of Ninth Grade Boys.
New York, New York Teachers College Press, 1960
p 144.

was associated with increasing vocational decisiveness for both males and females"⁶ and Maynard and Hansen (1970) found that "disadvantaged students may have different patterns of vocational development".⁷

(4) Vocational Choice and Personality Theories.

There has been a large amount of research in the area of personality and career development. The general hypothesis behind these studies is that people choose their jobs because they see in them the potential for the satisfaction of their needs. Most theorists have compiled a list of personality types and a list of jobs which correspond to the personality types. Researchers who have used the personality approach to career choice are Hoppock (1957), Small (1953), Schaffer (1953), Roe (1957) and Holland (1959). Holland's theory, in particular, has been supported by a substantial amount of research. Holland (1966) makes the following statements, "The choice of a vocation is an expression of personality"⁸, and, "Interest inventories are personality inventories".⁹ These statements epitomize the personality approach to career choice. Holland also says, "The members of a vocation have similar personalities and similar histories of personal development."¹⁰, and "Vocational satisfaction, stability and achievement depend on the congruency between one's personality and the environment (composed largely of other people) in which one

6. HOLLANDER, J.W.
Development of vocational decisions during adolescence. *Journal of Counselling Psychology* 18, (3), pp 244-248, 1971

7 MAYNARD, P.E. and HANSEN, J.C.
Vocational maturity among inner city youths. *Journal of Counselling Psychology* 17 (5 Pt 1), pp 400-404, Sept 1970

8 HOLLAND, J.L.
The Psychology of Vocational Choice. USA, Blaisdell Publishing Co, 1966 p 2.

⁹ Ibid p 3
¹⁰ Ibid p 5

works".¹¹ In making these statements Holland shows that there are aspects in all of the main approaches to vocational choice which apply to more than just the one approach. Super would most likely approve of the last two quotations cited, with reservations, but he would not be likely to agree with the assumption Holland makes that "aptitude and intelligence are less important than personality and interests in determining vocational choice."¹²

John Crites (1961)¹³ adds a few more categories to the list of vocational choice theories which Osipow did not explicitly include in his scheme.

- (5) Economic Theory - This is an approach which states that the individual makes his vocational choice because of the net advantages to him. Crites makes the very valid point that this theory assumes that an individual has complete freedom of choice.
- (6) Decision Theories. These theories are based on algorithms, for example, the theory put forward by Hersensen and Roth (1966).
- (7) General Theories - which are combinations of the former approaches, for example, the theory put forward by Blau et al (1956).

It is interesting to note that Crites categorizes Super as putting forward a "Self" theory of vocational choice rather than a "Developmental" theory where he quotes Ginzberg as an example of a researcher using the model.

11 Ibid p 6

12 Ibid p 9

13 CRITES, J.O.
Vocational Psychology. New York, McGraw Hill
Publishing Co., 1961.

Roberts (1968) proposes another model of vocational choice, claiming that "existing models based upon the premises of developmental psychology have been tested against the occupational behaviours and attitudes of young people in Britain; they have been found inadequate".¹⁴ Roberts calls his model the Opportunity-Structure model. Roberts says, "despite the widespread prevalence of the ideology of free occupational choice, different groups of school-leavers do possess differential ease of access to the various types of employment".¹⁵ The opportunities a person has are structured by his achievement at school, and his home background, according to Roberts. Roberts therefore felt that a person's ambitions were moulded by outside factors.

Osipow evaluates examples of the theories he discusses. Roe's personality theory and Holland's personality theory receive critical evaluations (on the grounds that they do not bother to explain how "personality" develops). Ginzberg et al receive favourable comments for their theory which Osipow feels is comprehensive and relates to what is known about human development. Super's theory receives the most favourable comments of all. Osipow says, "The theory is a well-ordered, highly systematic representation of the process of vocational maturity. It has the virtue of building upon aspects of the mainstream of developmental psychology and personality theory and demonstrating how these two streams can come together to clarify behaviour in one major realm of human activity ... in its current state it has considerable utility for both practice and research in vocational psychology."¹⁶

14 ROBERTS, K.
The entry into employment: an approach towards a general theory. Sociological Review 16, No 2 p 174 1968

15 Ibid p 176

16 Op.cit. p 168

Not all researchers support Super's theory, however. Tennyson (1968) questioned the theory of vocational development and stated that, "The potential of vocational education for providing exploratory experiences that develop broad occupational awareness needs researching."¹⁷

In 1965 Crites completed a study which has remained an influential piece of work over the last decade. Crites is strongly influenced by the developmental work of Super. He states that "within the developmental conceptual framework, vocational choice is not a single isolated act of the individual: it is a comprehensive, multi-faceted, ongoing process which encompasses many interrelated points in his pre-work life."¹⁸ Although Crites draws from the work of Roe, Ginzberg et al and other researchers, his basic framework was provided by the theory of vocational maturity put forward by Super¹⁹. Crites notes that there have been five different definitions of vocational maturity and that none of them have been shown to be related to age.²⁰ Crites worked at producing an inventory which measured vocational maturity. He states that his Vocational Development Inventory, the result of much labour "has been conceived and constructed to measure more completely than previous procedures the behaviour domains of choice competencies and attitudes in vocational maturity."²¹ There are two parts to Crites' Inventory - one to measure attitudes and one called the "Competence Test" which measures comprehension and problem solving abilities. Of the

17 TENNYSON, W.W.

Career development. Review of Educational Research 38(4), p 346, 1968

18 CRITES, J.O

Measurement of vocational maturity in adolescence : 1 attitude test of the Vocational Development Inventory. Psychological Monographs : General and Applied 79, No 2, whole No. 595 p 2 1965

19 Ibid p 4

20 Ibid p 2

21 Ibid p 7

attitude test Crites says, "... the attitude test was designed to elicit the attitudinal or dispositional response tendencies in vocational maturity which are non-intellective in nature but which may mediate both choice behaviours and choice aptitudes. The items for this test were developed from a combination of the best features of the empirical and rational methods of test construction."²² Crites found that the data he received from his Vocational Development Inventory Attitude Test indicated that verbally expressed vocational behaviour matures with age and school grades. Crites speculates that the importance of grades in relation to vocational maturity may rest on the fact that "the education system is a primary agent of what we might call 'vocalionalization'".²³

The test items, themselves, were based on the average responses of twelfth graders. The results of the test items from 3,000 subjects from grade five to grade twelve were analysed, using different forms of the proposed test.

With the proliferation of theories of vocational choice, it seems reasonable to attempt some serious evaluation of the different models. The schools play a large part in the vocationalization of adolescents and most of the research with this age group has used a developmental model - perhaps because Education as a discipline tends to favour developmental theories. It seems realistic to use a developmental model when dealing with adolescents because their personalities and life-styles are in such a state of flux as they try to deal with adulthood and all the new experiences that this phase of life brings, therefore we need to look at the factors in their lives which have brought them to this point.

22 Ibid p 7

23 Ibid p 27

RATIONALE FOR THE STUDY

There were quite a number of studies undertaken during the 1960 to 1970 period which showed that work experience while at school was useful in helping students to gain vocational maturity.

In 1969, as a result of a study of vocational maturity ratings of those in a "two year programme of structured, career-related activities" and a group not in this programme, Vriend stated, "The findings of this investigation has indicated that a programme which integrates vocationally related knowledge and activities into the total educational experience of inner city youth can positively modify and influence maturity of vocational development irrespective of sexual or curricular group membership."²⁴ This implies that the school programme was effective and also that it had more influence on the students in regard to their vocational maturity than did their sex or the subjects they took at school.

In 1970 Gay and Weiss found that their study supported the hypothesis that persons with different amounts of work experience tend to have different levels of specific vocational needs, that the overall level of vocational needs differs with differing work experience, and that differing amounts of work experience result in different levels of clarity in the individual's need structure. They say that "as a person experiences more and varied work environments he will become increasingly aware of vocationally relevant reinforcers and through the process of work adjustment his vocational need structure will be modified and clarified."²⁵

- 24 VRIEND, J
Vocational maturity ratings of inner-city high school seniors. Journal of Counselling Psychology 16: 377 - 384, S. 1969
- 25 GAY, E.G. and WEISS, D.J.
Relationship of work experience and measured vocational needs. Proceedings of the Annual Convention of the A.P.A. 5(pt 2) 663-664, 1970

In a related area Nuckols and Banducci (1974) found that "personal experiences were positively related to the knowledge students held of the occupations considered in this study."²⁶

In 1969 Harris ²⁷ found that the introduction of work experience as a part of the ninth grade curriculum improved the self image of those participating, improved their outlook towards school, improved their acceptance of and by others, and improved their perceptions of work. Sherck (1970)²⁸ also found that the self concept of students in a work experience programme improved.

Rollings (1968)²⁹ found that students who were doing Educational-Vocational planning courses, and those doing the courses as well as having counselling, made more realistic vocational choices (when compared with available labour market statistics) than a group which only received counselling. The Educational-Vocational planning consisted of classroom consideration of aptitudes, achievements, interests, examination of materials related to immediate, intermediate and long-range decisions and plans, and a variety of decision-

- 26 NUCKOLS, T.E. and BANDUCCI, R
Knowledge of occupations; Is it important in occupational choice? Journal of Counselling Psychology 21, No 3, p 191, 1974
- 27 HARRIS, M.S.
The effects of work experience programs on disadvantaged 9th grade students in Corvallis, Oregon. Dissertation Abstracts International 30 (4-9), p 1397, 1969
- 28 SHERCK, C.P.
Change in self concept of students in Ohio occupational work experience programmes. Dissertation Abstracts International 30, (10- A) p 4286, 1970
- 29 ROLLINGS, J.W.
An evaluation of the effects of exploratory experiences on the vocational maturity of 9th grade boys and girls. Dissertation Abstracts 29 (1-A), 126-127, 1968

making situations. Buck (1970)³⁰ found that students who had indulged in "vocational exploratory" behaviour had firmer and clearer ideas of what occupation they wanted to go into. La Fleur (1971) found that "the use of models and attentional variables provide a viable tool for the teaching of vocational behaviour to individuals."³¹

All of these studies suggest that vocational education and particularly that which involves work experience is successful in improving self concepts of the participants and inducing vocational maturity.

Even as late as 1971, however, some writers were challenging schools about the part they were playing in vocational education. For example Evans (1971) says, "The schools should have a goal of providing adequate information about occupational opportunities, stressing the point that the status of an occupation is of little importance compared to job satisfaction. They should also encourage students to make occupational decisions which can be changed later if the student feels it would be desirable. Practice in decision making with regard to occupations is an essential part of the education process."³² Writers such as Maizels (1970) have the same point of view, that the school plays a major role in the vocational development of a child. From a search through the literature Maizels is prompted to say, "the decisions, situations,

30 BUCK, C.W.

Crystallization of vocational interests as a function of vocational exploration in college. Journal of Counselling Psychology 17(4) p 347 - 351, 1970

31 La FLEUR, N.K.

The separate and combined effects of models, re-inforcement and attentional variables on adolescent vocational behaviour. Dissertation Abstracts International 31 (8-A), 3878, 1971

32 EVANS, R.N

Foundations of Vocational Education. Ohio, Charles E. Merrill Publishing Co, 1971
p 43.

events and experiences which arise during this phase (the transition from school to work) are largely socially conditioned; and that the ultimate choice of occupation, though perhaps regarded by school leavers and others as frequently self determined, seems to be, directly or indirectly, the outcome of a collaborative process of social interaction between school leavers and others, whose course is largely set by the requirements of the social system."³³ Keil et al (1966) say that "one of the major features of any adjustment to a worker's role or position, however defined, must be the preparation received in school".³⁴ They see entering the work world as a process made up of the following parts: (a) the socialization of the young person to the world of work, (b) previous work experience, (c) the formulation of a set of attitudes towards and expectations about work, (d) actual job entry, (e) experiences as a worker, and, (f) adjustment or non-adjustment as a worker. In 1968 Chester modified Keil et al's conceptualisation to apply it to a wider group by adding "personal variables" and "facilities and provisions which assist rational choice"³⁵ as part of the process.

Many writers have seen the transition from school to work as a difficult and traumatic time. Miller and Form (1951)³⁶ felt that the shock of going to work

33 MAIZELS, J.

Adolescent Needs and the Transition from School to Work. London, Athlone Press, 1970 p 5.

34 KEIL, E.T., et al

Youth and work; problems and perspectives. Sociological Review 14, p 118, 1966

35 CHESTER, R.L.C.

Youth, education and work: a revised perspective. Social and Economic Administration 2, Jan p 43, 1968

36 MILLER, D.C. and FORM, W.H.

Industrial Society. New York, Harper, 1951.

resulted from a confrontation of the realities of the work situation with the expectations carried from the school situation. Other writers who have studied the problem of the transition from school to work are Dansereau (1961)³⁷, Carter (1962)³⁸, Palmer (1964)³⁹, and Carter (1966)⁴⁰. All of these writers found that the transition from work to school presented varying degrees of difficulty for those undertaking it.

With this body of literature all showing that the transition from school to work can be fraught with problems and with the evidence that work experience helps a person to mature in his vocational attitudes and knowledge, many western countries have made serious attempts at adding vocational education to the school curriculum. The question that the schools must ask themselves now is, "What does a good vocational education programme consist of?"

Several schools in New Zealand are experimenting with special programmes to aid in the process of "vocationalization". In this present period of economic troubles we must expect some school pupils to find it hard to get jobs. It therefore becomes more important

- 37 DANSEREAU, H
Work and the teenager. *Annals of the American Academy of Political and Social Sciences* 338, 4, 44-52, 1961
- 38 CARTER, M.P
Home, School and Work. A study of the Education and Employment of Young People in Britain. Oxford, Permagon Press, 1962
- 39 PALMER, Y.C.
Young workers in their first jobs. An investigation of attitudes to work and their correlates. Occupational Psychology 38, 99 - 113, 1964
- 40 CARTER, M.P.
Into Work. Middlesex, England, Penguin Books Ltd, 1966

for the schools to be able to help their pupils to mature in their vocational aspirations so that they are better prepared to face the world of work. While the "academic" pupils are in just as much need of help in the process of gaining vocational maturity, their needs can be deferred for a little longer than can the needs of the slower pupil who will not be as successful in examinations and will leave school much earlier. It is presumably for these reasons that most schools have concentrated on their slower pupils in the setting up of work experience or work exploration classes. Since some schools have been running official programmes for a number of years now the instigators of the programmes are very interested in finding out how effective these programmes are. Ideally longitudinal studies should be made so that the career paths of pupils who have been in such programmes could be followed, but there are obvious restrictions about this type of research at the M.A. level.

THE DEVELOPMENT OF THE VOCATIONAL DEVELOPMENT QUESTIONNAIRE

It was hoped that the effectiveness of one fairly well established work exploration scheme could be gauged with the help of Crites Vocational Attitude Test. This test was to be used before and after participation in a prevocational work exploration scheme. Since attitudes may not always predict how people will behave, a further questionnaire was devised and written, based on the theory of Super and on the vocational research of Robert Carkhuff. This questionnaire is an objective tally of the vocational repertoire (behaviours and knowledge) of the students in the programme.

As we have seen in Super's theory⁴, vocational development begins with the crystallization phase which is meant to take place between the ages of fourteen and eighteen. The pupils in the work exploration programme used in this study lay within this age range and so they should be somewhere near this phase.

The crystallization phase consists of the following parts:

- (a) The awareness of the need to crystallize
- (b) Use of resources
- (c) Awareness of factors to consider in making a choice
- (d) Awareness of contingencies which may affect goals.
- (e) Differentiation of interests and values.
- (f) Awareness of present-future relationships
- (g) Formulation of a generalized preference.
- (h) Consistency of preference.
- (i) Possession of information concerning the preferred occupation.
- (j) Planning for the preferred occupation.
- (k) Wisdom of the vocational preference.

Allied closely with this approach is that taken by

Carkhuff and Friel (1974)⁴¹ who divide the phases of career development into three areas:

- (i) career exploration
- (ii) career understanding
- (iii) career action.

In phase (i) a person must explore his own identity, his interests (in people and things) and his present and future levels of achievement. In phase (ii) a person must narrow the careers alternatives, that is, he must understand himself in relation to the career alternatives possible for him. This includes understanding his physical, emotional and intellectual values as well as understanding the career requirements as far as physical emotional and intellectual factors are concerned. In phase (iii) a person must develop programmes or courses of action to get to the career goal.

In the development of a questionnaire which attempted to tap vocational behaviour, the experimenter combined aspects of all these models.

The first phase of career development is exploration or the awareness of the need to crystallize one's ideas about possible occupations. Questions in the Vocational Development Questionnaire which were designed to tap this area were questions 1 and 2 (see Appendix B).

The next area covered in Super's model is the use of resources. Question 3 was designed to see how many of the available resources were being used by each individual.

Phase (ii) of Carkhuff and Friel's model, career understanding, covers categories (c) to (i) in Super's model. The questions which were designed to cover

⁴¹ CARKHUFF, R.R. and FRIEL, T.W.
The Art of Developing a Career. A Student's Guide. N.Z. Revision, Webster A, New Zealand, Human Resource Development Press, 1974, Book 1

these areas were as follows:

- (c) (awareness of facts to consider). There were no specific questions in this area but questions 7, 8 and 9 were designed to guide the student into consideration of three groups of factors.
- (d) (awareness of contingencies which may affect goals). Questions 14, 15 and 16 were designed to cover this area.
- (e) (differentiation of interests and values). Questions 4, 5 and 6 covered this area.
- (f) (awareness of present-future relationships). Questions 13, 14 and 15 covered this area.
- (g) (formulation of a generalized preference). Question 6 dealt with this.
- (h) (consistency of preference). This aspect was not built into the questionnaire therefore no questions covered this area.
- (i) (possession of information concerning the preferred occupation). This information was deduced from questions 10, 11 and 12.

Phase (iii) of Carkhuff and Friel's model is that of career action. The corresponding areas of Super's model are:

- (j) (planning for the preferred occupation). Question 18 covered this area.
- (k) (wisdom of the preferred occupation). This aspect was decided on the basis of whether or not the students' answers to question 17 were realistic in terms of their academic ability and age.

In an attempt to make the questionnaire more comprehensible to the students, the order of the questions was arranged so that they followed a thought sequence rather than fitting the sequence suggested by the theories. The very general questions about when a person should start thinking about a job and where

they should look were placed first. These were followed by questions concerning factors which should be considered when making a career choice. The questions designed to find evidence of whether the students had thought of these factors came next. Finally, the questions concerning the more specific area of jobs the students could do in the present, jobs they could do with further training, and the job they wanted to do, were covered.

It was decided to simplify the scoring by giving a single mark for each questionnaire for the sake of keeping the experimental design uncluttered. (There was a single score for the Crites Test).

METHODOLOGY

- Sample: (a) A fifth form class undergoing a Prevocational Work Exploration Scheme in a New Zealand secondary school.
- (b) A control group of students not undergoing the Work Exploration Scheme who were matched to the experimental group (a) in age, school level, and IQ as recorded on school health records.

The sex ratio for both experimental and control groups was kept the same.

- Tests Used: (i) Crites' Vocational Attitude Test (Form III, V.M. and D).
- (ii) Vocational Development Questionnaire, developed specifically for this study.

Design: Both tests were administered to both groups of pupils on two separate occasions. The first administration of the tests took place in the first week of the school term, before the pupils had experienced their first day at work (being a part of the scheme). The second administration of the tests took place in September of the same year, when the pupils had been in the scheme for two and a half school terms. Crites' Vocational Attitude Test was administered before the Vocational Development Questionnaire in both pre-test and post-test conditions. Instructions given to the pupils were:

- (1) that neither of the tests was timed, therefore the pupils were to keep going until they had finished, ignoring any bells at the end of the school period. (It was

found that it took one and a half hours to complete both questionnaires and to collect them in again).

(2) that the pupils were to ask the experimenter if they were in doubt about any of the questions.

Before commencing Crites' Vocational Attitude Test, there was a short discussion on the meaning of the word "occupation" to ensure that the class understood it meant "job". (This was an accurate enough simile for the purpose of this study).

All printed instructions on the tests were read out to the class and the method of answering was demonstrated on the blackboard.

The experimenter took charge of the experimental group in both pre-test and post-test condition but one of the work exploration class teachers administered the pre-test questionnaire to the control group and a psychology graduate administered the post-test questionnaires to the control group.

Straight after the second administration of the tests, a group of six students was chosen at random by the experimenter and interviewed in an informal and almost entirely unstructured way. The purpose of the interview was to provide an open ended situation so that the pupils could say whatever they wished about the Prevocational Work Exploration Scheme.

The individual answers to both tests were made completely anonymous as the experimenter did not intend to look at the

results of the individual student, but to examine the trends of the groups. Individual changes in vocational development may have been caused by any number of personal factors and we were looking specifically at the action of the school programme on the whole class.

Since a control group and an experimental group were chosen, the experiment was based on independent samples.

Statistical Analysis: After much deliberation it was decided to use the Mann-Whitney test of significance for sorting out the data. This test was chosen because the experimental design was one using an independent sample, because the data was measured on an ordinal scale (there is no "unit" of vocational maturity therefore the t-test which assumes such interval scaling is not strictly appropriate), and the population may not be normally distributed. Of the Mann-Whitney test, Steve Millar⁴², author of "Experimental Design and Statistics", says... "Even when it is used with data that are appropriate to the t-test, its power to detect significance is not much less than that of the t-test itself." The Mann-Whitney test allows us to test whether one set of scores tends to be higher or lower than another set. Some of the results were finally converted into Z scores as the group size was too large for application of the Mann-Whitney test.

As the scores on Crates "D" scale

⁴² MILLAR, S.

Experimental Design and Statistics, Essential Psychology Series, Peter Herriot (Ed) London Methuen & Co Ltd 1975 p 82

were all low and as Crites never explicitly says what one is supposed to do with this "D" score, the experimenter decided to disregard it and to concentrate on the "VM" score. A quick look at Appendix A will enable the reader to see the individual scores on the Crites' Vocational Attitude Test and shows that out of a possible "D" score of 10, only two pupils produced scores above 4. The "D" score is presumably meant to be a counter balance to the "VM" score. As can be seen from Appendix A, the mean scores on the D scale were 1.54, 1.41, 1.13 and 1.45 and therefore low enough to discount interference with the vocational maturity scores.

A significance level of 0.025 was chosen. The analysis of the first hypothesis will be done by a simple comparison of the means. It was impossible to do anything other than comparison of means as the answer sheets were not named and so individual rises or declines in scores could not be worked out. The following comparisons will be made:

- (1) The mean rise or fall in the scores of E group between the pre-test and post-test of Crites' Vocational Attitude Test.
- (2) The mean rise or fall in the scores of C group between the pre-test and post-test of Crites' Vocational Attitude Test.
- (3) The mean rise or fall in the scores of E group between the pre-test and post-test of the V.D.Q.
- (4) The mean rise or fall in the scores of C Group between the

pre-test and post-test of the
V.D.Q.

The following comparisons will be made
using the Mann-Whitney test:

- (a) E group with C group on Crites' Vocational Attitude test in the pre-test condition.
- (b) E group with C group on Crites' Vocational Attitude test in the post-test condition.
- (c) E Group with C group on the V.D.Q. in the pre-test condition.
- (d) E group with C group on the V.D.Q. in the post-test condition.

NULL HYPOTHESES AND EXPERIMENTAL HYPOTHESES

It will be expected that the E group will make greater advances in vocational maturity than will the C group. One of the aims of the Work Exploration Programme is to increase the vocational maturity of the students in terms of giving them a realistic look at certain occupations, therefore we will be able to judge the effectiveness of the programme by whether or not it helps students to develop realism in their vocational attitudes. The experience of working in a job once a week for two school terms should give the work experience class (E group) a greater chance to develop their vocational attitudes and behaviour than will be afforded to the control group. This development should be over and above any which might occur through holiday employment or after school jobs as many of the E group also have holiday or after school jobs. We would expect the work experience class to have more firmly fixed ideas about the sorts of things they like and need in the work situation and to have a greater knowledge of the work world.

It will be expected that there will be no significant difference between the results of the attitude test and the results of the V.D.Q, developed for this study, since Crites' Vocational Attitude Test has been extensively researched in the U.S.A. and found to reflect true vocational behaviour, and the V.D.Q. is based on the pupils' direct knowledge and experience of the work situation. We should note at this point that there has been some scepticism in the past as to whether "attitude" tests are a true indication of actual behaviour. In talking with many vocational guidance officers and careers advisors, realism in their clients' attitudes towards what sort of job is suitable for them and what the job involves, is one of the most important indicators of vocational maturity. For instance it is not uncommon for young people to go to vocational guidance officers or careers

advisors requesting information about jobs which are totally unsuitable for their intellectual level. It is also quite a common experience to meet young people who state their vocational choice but when asked to describe the sort of work that this job involves they either have no clear idea at all, or rely on stereotypes presented to them mainly by the media. For these reasons the V.D.Q concentrates mainly on job descriptions involving physical, intellectual and emotional aspects of the job. Many of the questions were scored on a straight "fluency" basis, that is, the greater the number of responses was presumed to mean that the pupil had a greater knowledge of that particular aspect of a job. (See the Appendix for the scoring system of the V.D.Q).

If it should be that the results of the Crites' Vocational Attitude Test and the results of the V.D.Q are significantly different for a particular group, or for both groups, we may conclude that either, a) the disparity is caused by the fact that the American test does not generalize to the New Zealand population used, or, b) the V.D.Q fails to measure vocational maturity. The post-test interview may shed some light on such possible deviations.

The Null Hypotheses are stated thus:

- (1) There will be no significant difference between the vocational development of the students in the Work Exploration Scheme and those not in it (that is, between E group and C group), as measured by the Crites' Vocational Attitude Test in the Post-Test condition.
- (2) There will be no significant difference between the performance of E group and the performance of C group on the V.D.Q in the Post-Test condition.
- (3) The pupils will report that they found no value in the Work Exploration scheme.

The corresponding alternative hypotheses are:

- (1) There will be a positive and significant difference in the vocational development of E group and that of C group as measured by Crites' Vocational Attitude Test.
- (2) There will be a positive and significant difference in the vocational development of E group and C Group as measured by the V.D.Q.
- (3) The pupils will report that the Work Exploration Scheme was worthwhile in teaching them about the work world.

TABLE I CRITES SCORES

Condition and Group	N	Mean	S.D.	Range
Pre-Test E	46	29.9	6.5	12 to 43
Pre-Test C	11	34.9	5.1	25 to 41
Post-Test E	29	33.1	7.4	16 to 42
Post-Test C	8	36.4	5.2	25 to 42

TABLE II V.D.Q SCORES

Condition and Group	N	Mean	S.D.	Range
Pre-Test E	46	22.6	7.7	7 to 37
Pre-Test C	11	30.6	7.2	20 to 42
Post-Test E	29	23.7	6.8	10 to 33
Post Test C	8	30.8	6.3	24 to 40

TABLE III SUMMARY OF RESULTS OF HYPOTHESIS 1

Test and Group	Mean Pre-Test	Mean Post-Test	Gain
Crites E Group	29.9	33.1	3.2
Crites C Group	34.9	36.4	1.5
V.D.Q E Group	22.6	23.7	1.1
V.D.Q C Group	30.6	30.8	0.2

TABLE IV SUMMARY OF RESULTS OF HYPOTHESIS 2

Comparisons	Z Score	Obtained Probability	Decision
Crites E Group with C Group Pre-Test	0.2177	$P = 0.4129$	Reject H_0
Crites E Group with C Group Post-Test	4.57	$P < 0.00003$	Reject H_0
V.D.Q E Group with C Group Pre-Test	2.68	$P = 0.0037$	Retain H_0
V.D.Q E Group with C Group Post-Test	1.77	$P = 0.0384$	Retain H_0

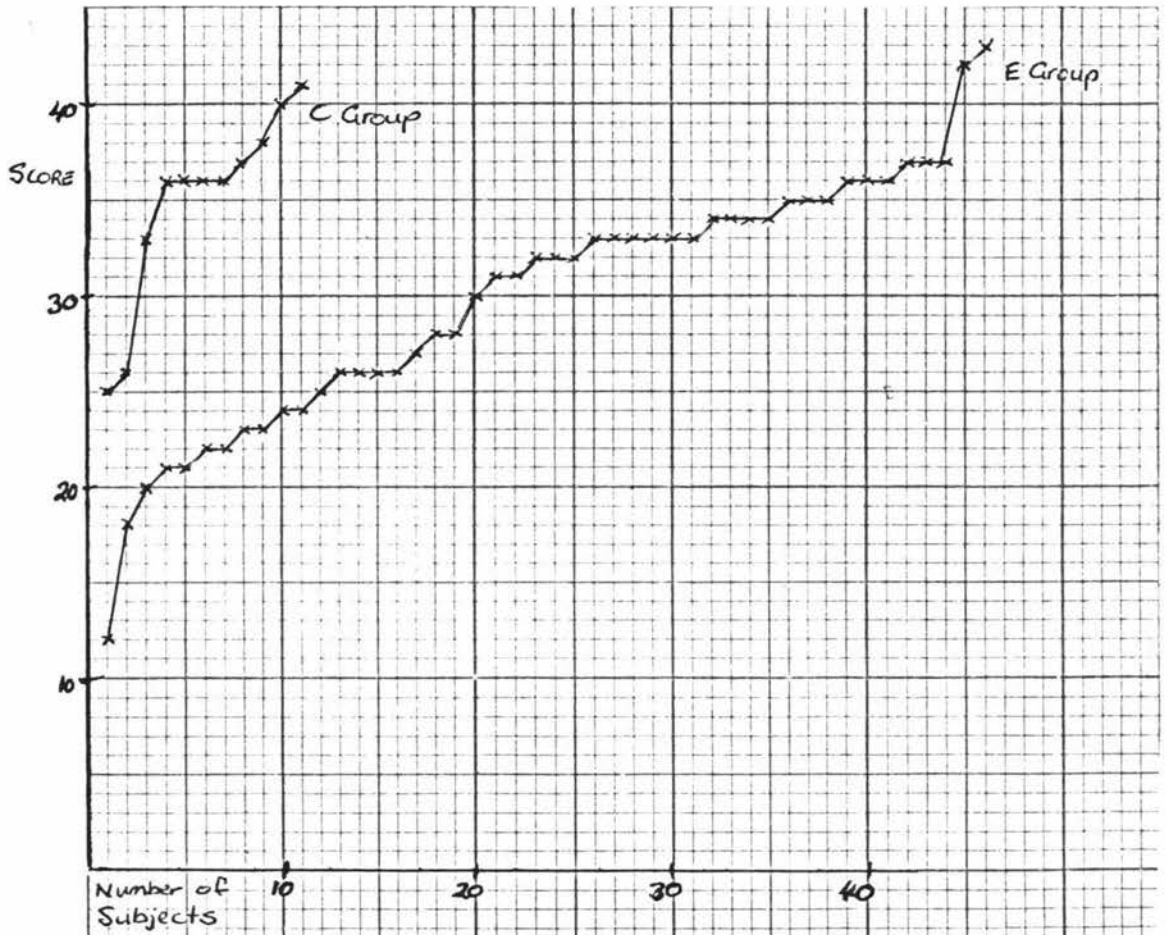
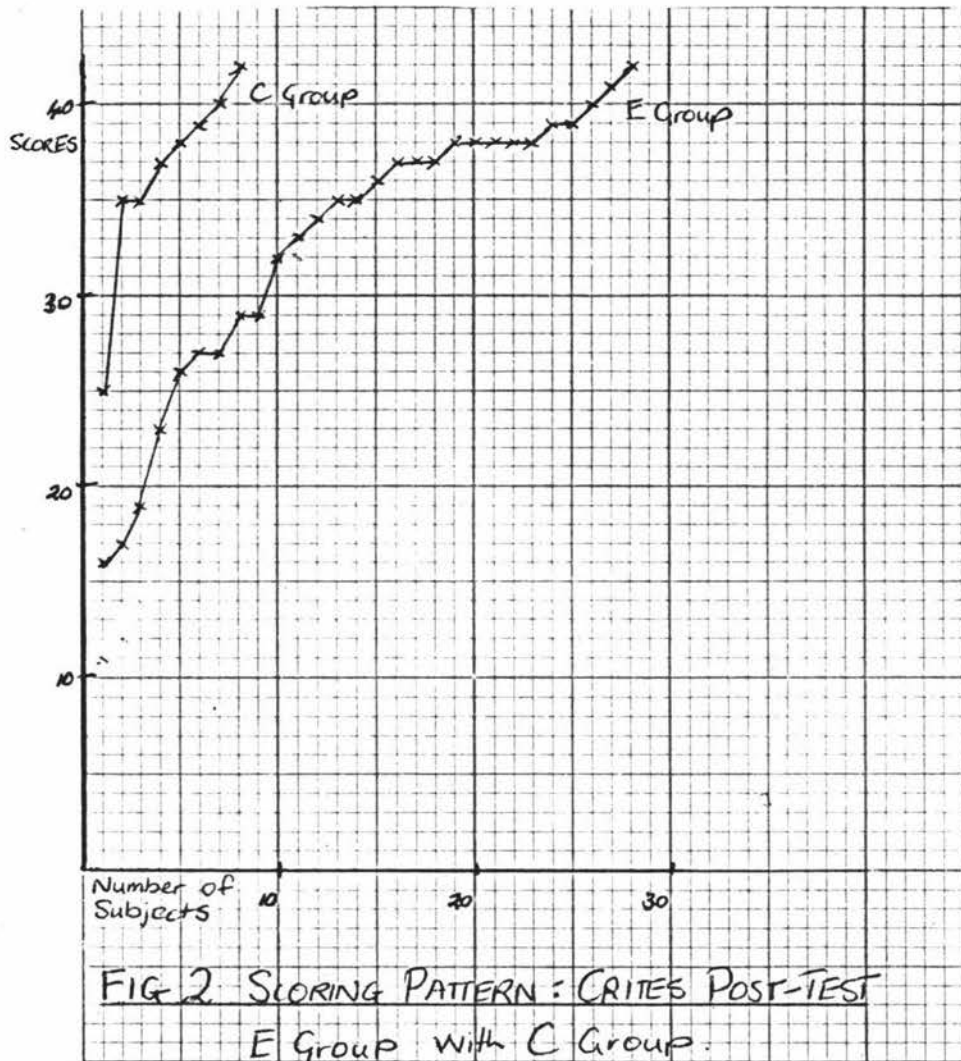
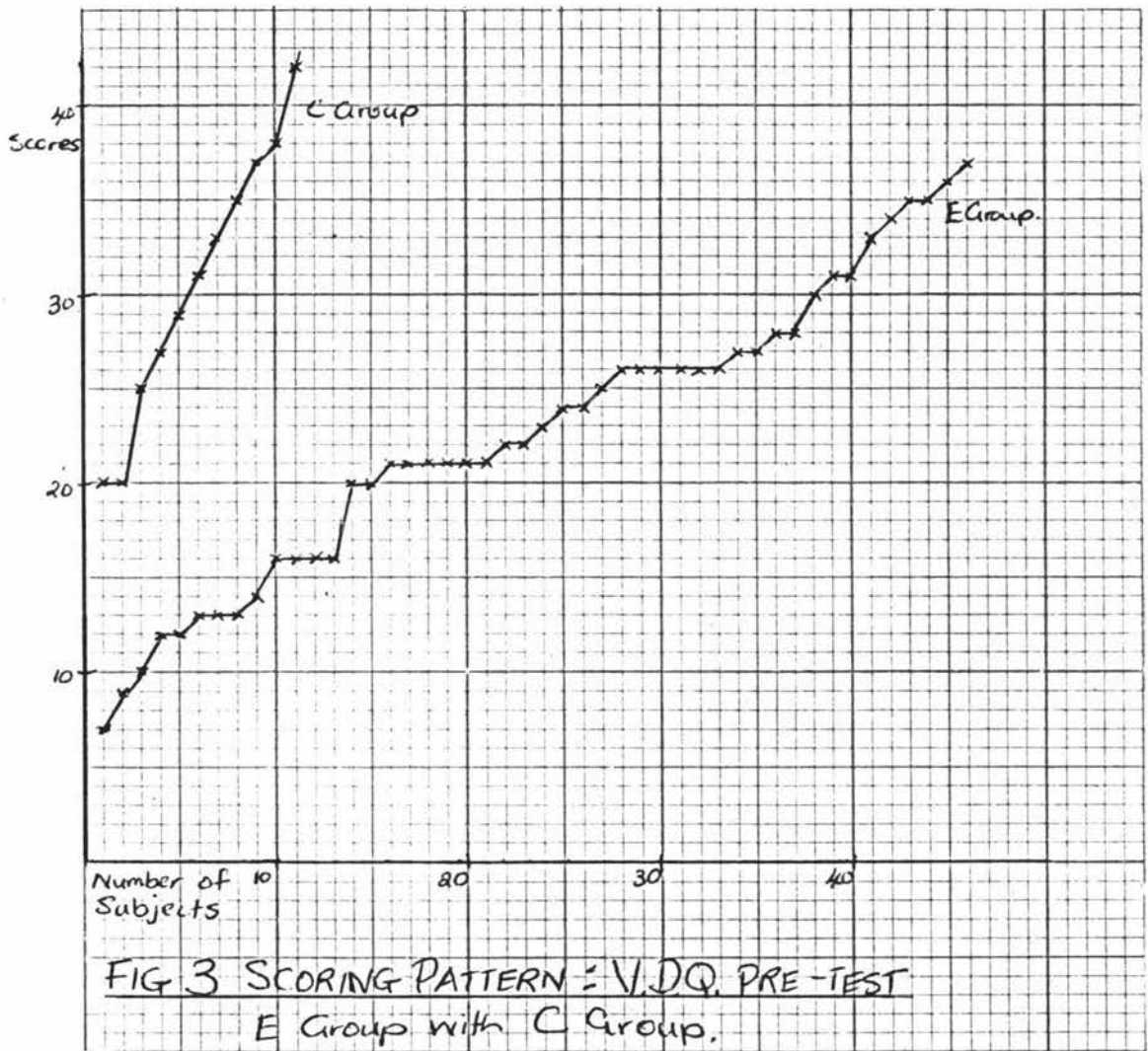
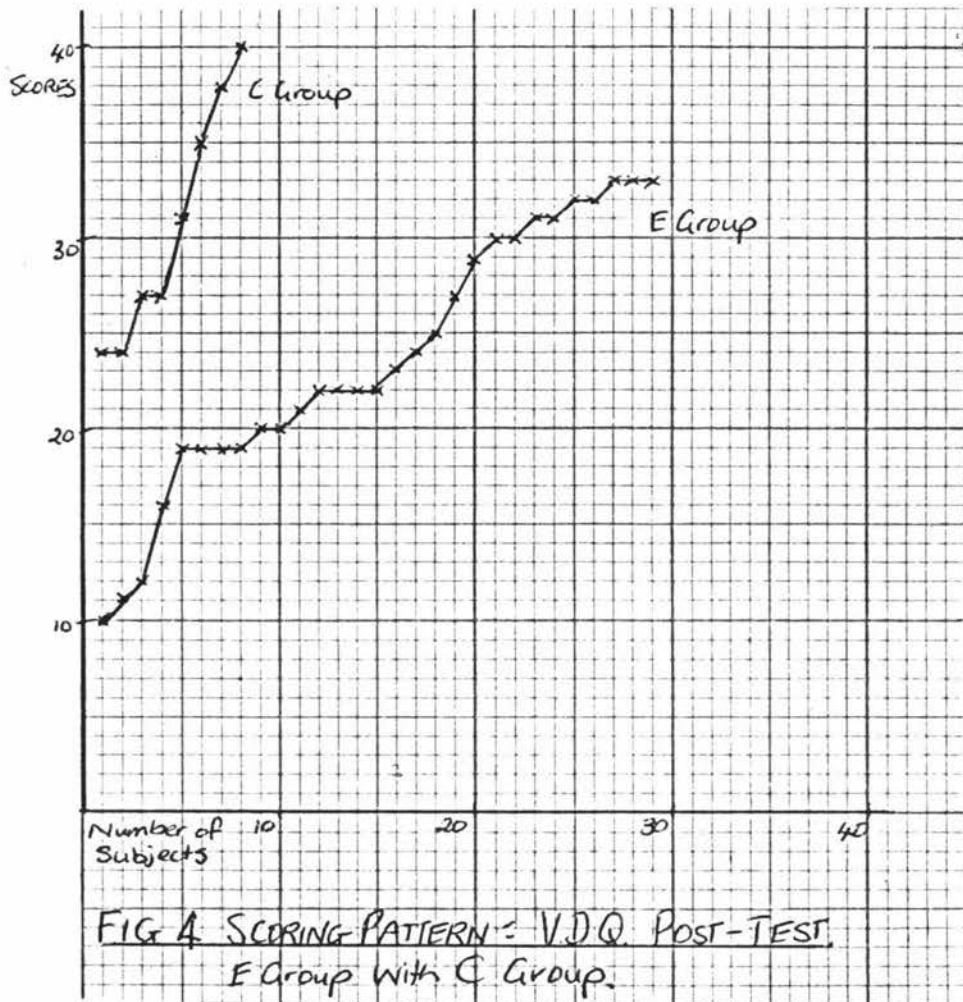
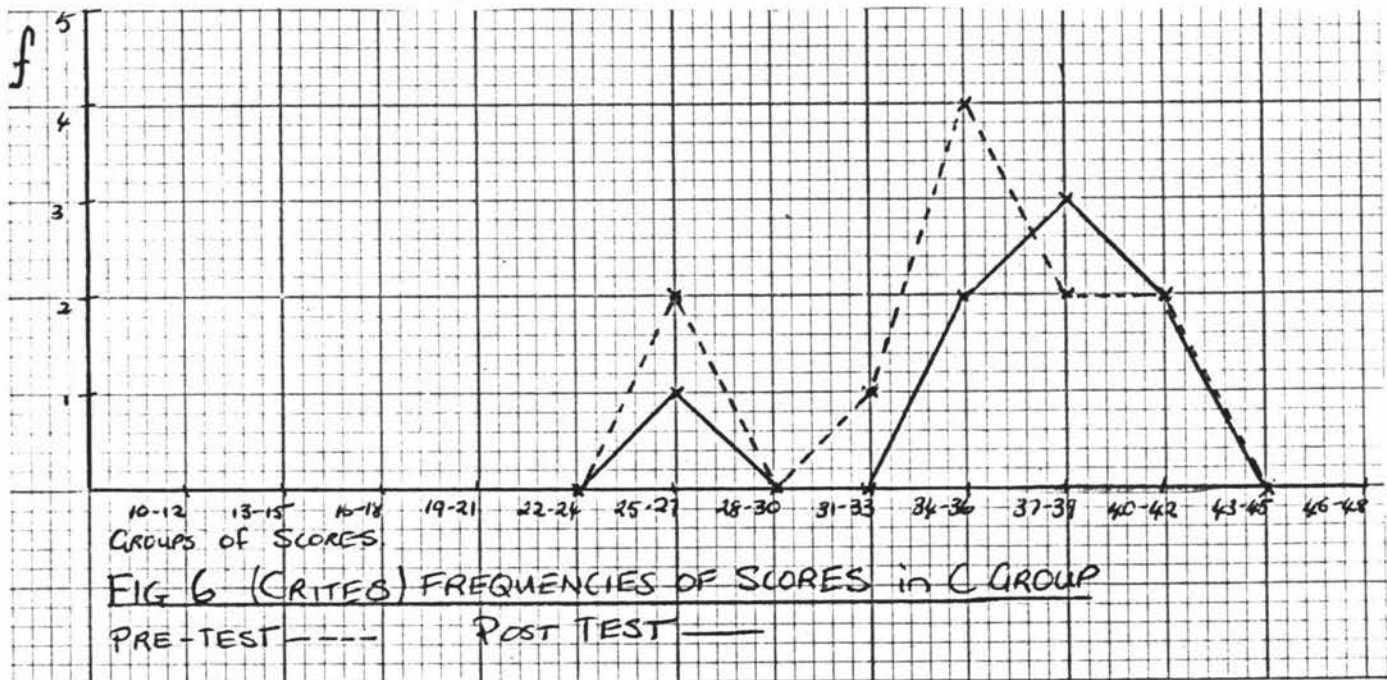
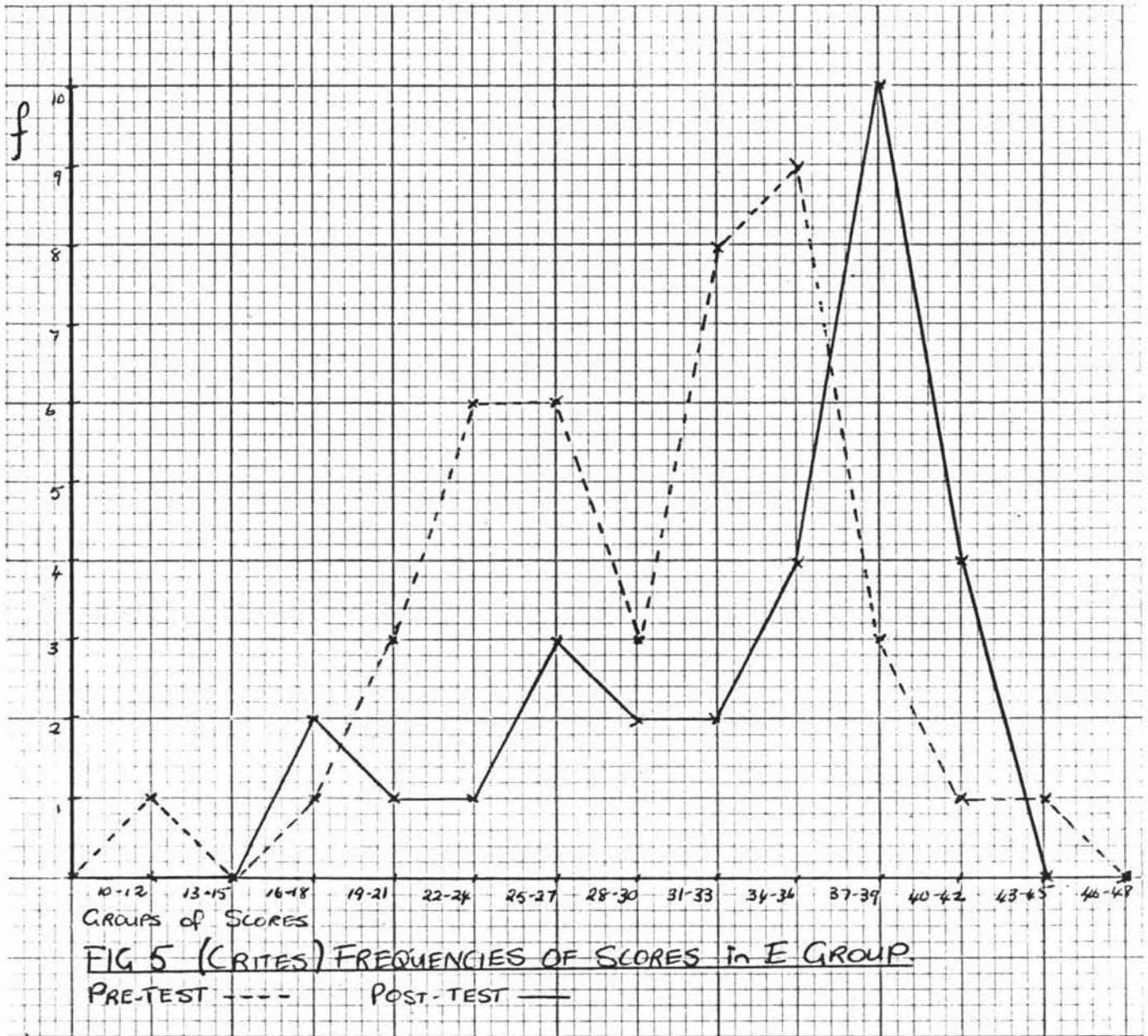


FIG 1 SCORING PATTERN = CRITES PRE-TEST
E Group with C Group.









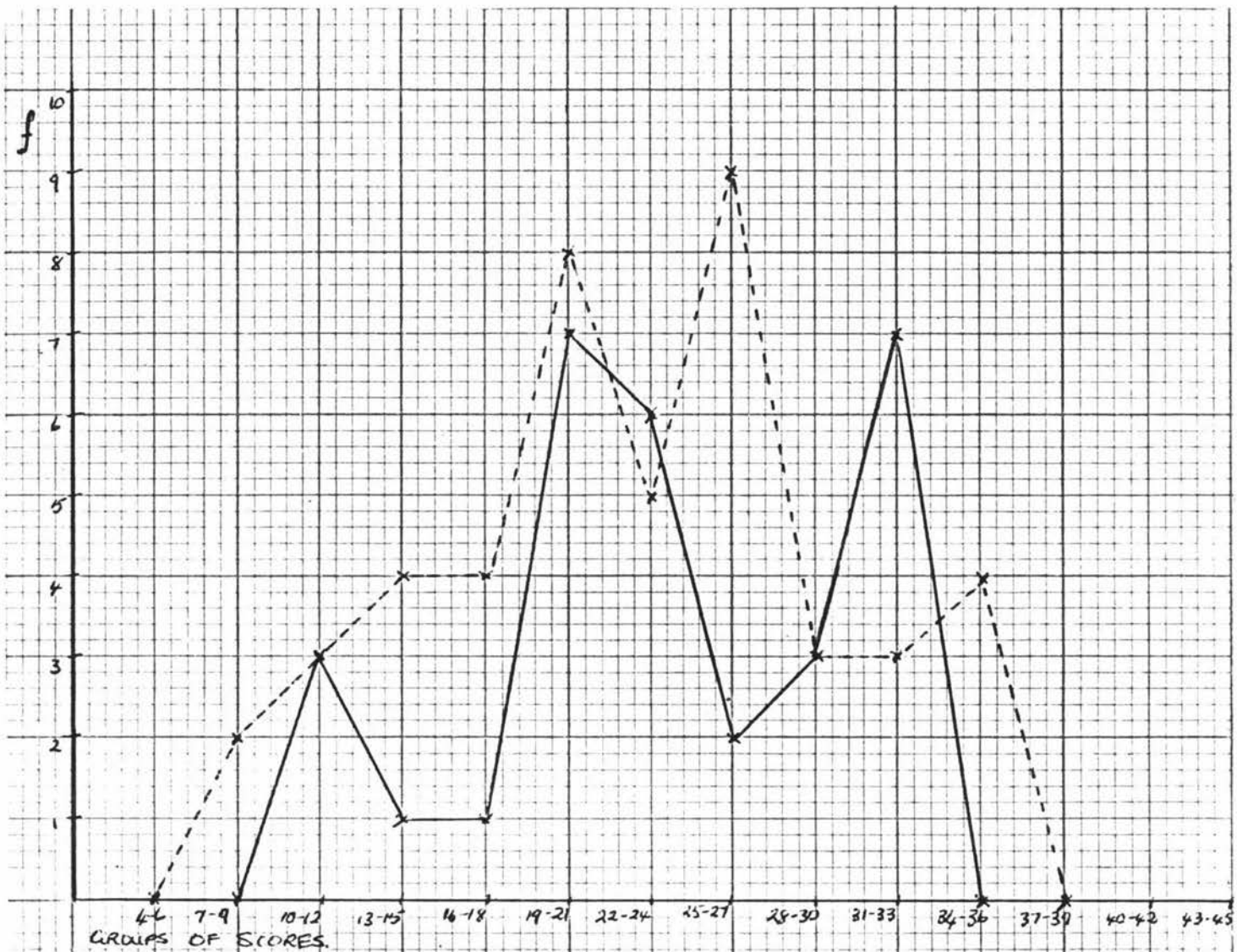


FIG 7. (V.D.Q) FREQUENCIES OF SCORES IN E GROUP
 PRE-TEST --- POST-TEST —

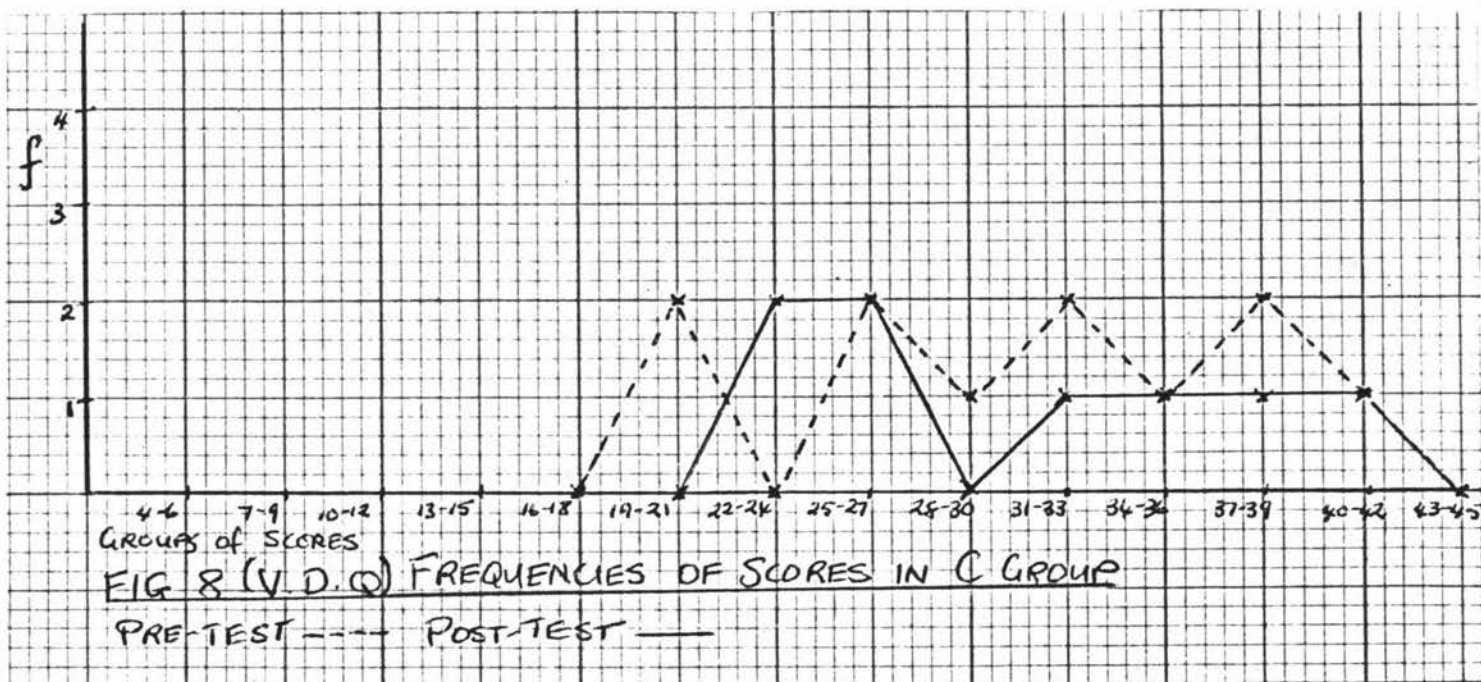


FIG 8 (V.D.Q) FREQUENCIES OF SCORES IN C GROUP
 PRE-TEST --- POST-TEST —

RESULTS

From Table III we see that there was very little change in the mean scores in the pre-test or post-test condition, therefore it seems that neither E group nor C Group matured much in their vocational attitudes or behaviours during the course of the year. However, from Table IV we see that the results of the statistical analysis was as follows:

- (a) There was no significant difference in the performances of E group and C group in the pre-test condition of Crites' Vocational Attitude Test.
- (b) There was a significant difference in the performances of E group and C group in the post-test condition of Crites' Vocational Attitude Test. (The probability was less than 0.00003 that the result could occur by chance).

Therefore we reject the null hypothesis which states that there will be no significant differences between the vocational development of E Group and C Group as measured on Crites' Vocational Attitude Test, because although there were no differences between the two groups at the beginning of the year, there was a significant difference at the end of the year.

- (c) There was a significant difference in the performances of E Group and C Group in the pre-test condition of the V.D.Q (The probability was 0.0037 that these results could have occurred by chance).
- (d) There was no significant difference in the performances of E Group and C Group in the post-test condition of the V.D.Q.

Therefore we must accept the null hypothesis which states that there will be no significant differences between the performances of E Group and C Group in the post-test condition of the V.D.Q.

The Results of the Interview

Unfortunately, the notes of the exact conversation at the interview were lost somewhere in the Experimenter's travels and so they cannot be recorded in this thesis. The results were written up from rough notes only. (See Appendix B for the questions set down by the experimenter as a guideline for the informal interview.)

The six students all said that they felt the programme had been very worthwhile for them, therefore we reject the null hypothesis.

DISCUSSION OF RESULTS

Firstly it is necessary to make some comments about the sample number and about some unexpected trends in the scores.

By looking at Table I and Table II we can see that the number of pupils who completed the second testing (post-test) is far smaller than the number we started with. This drop in numbers was expected as both E Group and C Group were comprised of pupils in the fifth form who were only sitting (at the most) one subject in School Certificate examinations and were therefore quite likely to leave school if a good job came up. As it happened most of the 17 from E Group who left school during the year were working in jobs they had spent a term at while they were part of the Work Exploration Scheme. Although placement was not a part of the scheme, one could say that the scheme had been successful for those who had left school to work full time in a job they had first tried as a part of the scheme. All of the pupils who had left school had had some experience of two jobs regardless of how much they liked or hated one of them (none of the pupils had left during the first term). It would be both interesting and valuable to keep track of these students and of the whole Work Exploration class to see how stable their work records are or whether they stay in the same type of job during their work careers.

The second factor we notice from Table I and Table II is that although E Group and C Group were matched in terms of their IQ and their parental background, C Group had higher average scores than E Group. (IQs were taken from School Record cards and were therefore the results of the OTIS test). Correspondingly we notice that the scores for C Group had a

narrower range and were situated at the higher end of the range. (See also Figures 1 - 4, Figure 6 and Figure 8). Since the organiser of the Work Exploration Scheme tried to include every pupil who was suitable for the scheme, the Control Group was comprised of a small number of students who for one reason or another had not joined the scheme. Some of C Group were not given parental consent to join the Work Exploration Scheme, some of them had been behavioural problems in the past and were not asked to join the scheme for public relations reasons, and some of them did not wish to join the class for unspecified personal reasons.

It seems that C Group had a higher initial Vocational Maturity, as measured on both tests. C Group's mean score was 5.0 points above E Group in the pre-test of Crites' Vocational Attitude Test (see Table I) and 8.0 points above E Group in the pre-test of the V.D.Q. In the post-test condition, C Group's mean score was 3.2 points above that of E. Group in Crites' Vocational Attitude Test and 7.1 points above E Group in the V.D.Q. Without further testing it is impossible to say why C Group was higher on vocational maturity scores than E Group.

The results to the null hypotheses lead us to say that, a) the Work Exploration Scheme was successful in advancing the vocational maturity of E Group, over and above C Group, and, b) the V.D.Q is a less accurate measure of vocational maturity than is Crites' Vocational Attitude Test.

Although there was little difference between the first and final scores of vocational maturity on either of the tests there was a difference in the spread of the scores in Crites' Vocational Attitude Test. In Figure 5 we can see that the scores for the pre-test condition roughly followed the normal distribution curve whereas the scores for the post-test

condition was skewed to the top end of the range. Thus it would appear that, due to the action of the Work Exploration Scheme, more students had moved from the middle range to the upper range of the scores. As can be seen from Figure 7, the scores in the pre-test and post-test condition of the V.D.Q both roughly follow the normal distribution curve.

The Vocational Development Questionnaire needs some refining before it becomes a discriminating measure of vocational maturity. This study might be considered a pilot study of the adequacy of the V.D.Q as a measure of vocational maturity.

From an administration point of view the format of the V.D.Q is inconsistent and in some places, unwieldy. The experimenter attempted to place the questions in a logical thought sequence so that one question led on from the next, therefore the mode of answering sometimes changed from question to question. This may have been confusing to the students although not many of them appeared to have difficulty answering the questions (as judged by the number of students who specifically asked the experimenter to explain a question, and also by the number of students who gave unrelated answers to the questions.)

Question 7, which reads "In any two jobs you know about (preferably two jobs you have thought about doing yourself) write down the things people do in these jobs", caused confusion as many students did not immediately understand that the experimenter required the same type of answer but applied to two jobs. The experimenter asked for two jobs because most children would know about one job (even if it was their father's!) but we were trying to see whether the students had the knowledge to make job comparisons. It is therefore difficult to see how this problem could be surmounted.

Crites' Vocational Attitude Test could have been a bit too long-winded for a low ability group such as the one used in this study. Although there were no visible signs of students losing concentration, one would expect a low ability group to find it boring to complete sixty questions. The fact that the V.D.Q. was administered after Crites' Vocational Attitude Test may have meant that it was not answered as carefully as it might have been. The fact that the V.D.Q. calls for written answers may also have been a deterrent to some students.

Results of the Interview

All six of the students claimed to have learned something about the work world which they had not known before. Their comments and their answers to questions posed by the experimenter, indicated that they had a reasonably mature attitude towards the work world in that they all accepted it as fact that there were enjoyable and not so enjoyable aspects to any job, that some jobs suited an individual better than others, and that many jobs sounded good but when actually tried they were boring, tiring, or not what was expected.

Some inconsistency was shown in the students' attitudes when four out of the six thought that the Work Exploration Scheme would be improved if they only had to work the normal school hours when on the job. The four students commented that they felt very tired when they had to work such long hours. Although the experimenter tried to explain to them that this was a part of the reality of the work world (and many of their teachers had apparently tried to convince them of this fact earlier on), they remained unconvinced.

The question of not being paid for their work was also discussed but the students seemed well aware of the problems posed by the firms, the schools and the law. They all said that it would be nice to be

getting paid but that they realized the main benefits of having the job was the experience it gave them.

CONCLUSION

After analysing and discussing the results we can state that:

- (1) There was no significant difference in the performance of the experimental group and of the control group in the pre-test condition of Crites' Vocational Attitude Test, whereas there was a significant difference in the performance of these groups in the post-test condition of Crites' Test. We therefore reject the null hypothesis and conclude that the experimental group had gained more in vocational maturity during the course of the year than had the control group.
- (2) There was no significant difference in the performance of the experimental group and of the control group in the post-condition of the V.D.Q. We must therefore retain the null hypothesis and assume that Crites' Vocational Attitude Test and the V.D.Q. measure different qualities.
- (3) The students reported that they had found the Work Exploration Scheme a worthwhile experience.

Since the results of the Crites' Test and the informal interview both indicate that the students had gained in vocational maturity we conclude that Crites' Vocational Attitude Test is a more valid measure of vocational maturity than the V.D.Q.

APPENDIX A RAW SCORES

RAW SCORES OF CRITES VOCATIONAL ATTITUDE TEST

E GROUP PRE-TEST

D SCORES		VM SCORES	
0	5	24	32
2	0	18	27
3	4	24	20
1	1	12	25
1	0	26	33
2	0	34	31
1	1	36	35
0	0	35	35
0	2	28	26
1	1	21	32
2	0	28	33
3	1	26	33
0	0	30	36
2	2	33	26
1	2	36	22
3	1	33	42
3	0	23	34
3	2	34	31
8	1	33	43
2	1	37	37
2	2	34	22
2	1	21	32
0	2	37	23

Mean of D Scores = 1.54

Mean of VM Scores = 29.85

S.D. of D Scores = 1.53

S.D. of VM Scores = 6.51

APPENDIX A Cont.

RAW SCORES OF CRITES VOCATIONAL ATTITUDE TEST
E GROUP POST-TEST

D SCORES	VM SCORES
1	40
2	16
8	29
0	34
0	36
2	23
1	38
2	17
2	39
2	41
2	39
0	37
2	37
2	27
4	35
1	37
1	38
1	38
0	42
1	41
1	19
0	32
1	33
1	29
1	35
1	38
1	26
1	38
0	27

Mean of D Scores = 1.41

Mean of VM Scores = 33.14

S.D. of D Scores = 1.55

S.D. of VM Scores = 7.36

APPENDIX A Cont.

RAW SCORES OF CRITES VOCATIONAL ATTITUDE TEST
C GROUP PRE-TEST

D SCORES	VM SCORES
1	37
2	36
1	33
1	36
1	38
4	26
1	25
2	36
1	40
0	36
2	41

Mean of D Scores = 1.45

Mean of VM Scores = 34.91

S.D. of D Scores = 1.04

S.D. of VM Scores = 5.13

RAW SCORES OF CRITES VOCATIONAL ATTITUDE TEST
C GROUP POST-TEST

D SCORES	VM SCORES
4	38
1	35
1	35
0	42
0	37
2	39
1	25
0	40

Mean of D Scores = 1.13

Mean of VM Scores = 36.38

S.D. of D Scores = 1.36

S.D. of VM Scores = 5.18

APPENDIX A Cont.

RAW SCORES OF THE VOCATIONAL DEVELOPMENT QUESTIONNAIRE

E GROUP PRE-TEST AND POST-TEST

PRE-TEST		POST-TEST	
25	33	32	Mean of Pre-test Scores = 22.63
26	22	12	Mean of Post-test Scores = 23.69
21	30	10	S.D. of Pre-test Scores = 7.70
23	31	30	S.D. of Post-test Scores = 6.82
26	24	24	
20	27	30	
13	21	33	
26	21	33	
35	26	31	
12	34	27	
21	21	22	
7	37	22	
31	9	23	
16	13	16	
28	14	19	
16	16	19	
20	21	22	
26	22	29	
10	24	19	
36	27	20	
35	28	31	
12	26	19	
13	16	25	
		21	
		22	
		20	
		32	
		33	
		11	

APPENDIX A Cont.

RAW SCORES OF THE VOCATIONAL DEVELOPMENT QUESTIONNAIRE

C GROUP PRE-TEST AND POST-TEST

PRE-TEST	POST-TEST
29	38
20	24
35	31
38	35
33	27
37	24
27	27
25	40
31	
20	
42	

Mean of Pre-Test Scores = 30.64

Mean of Post-Test Scores = 30.75

S.D. of Pre-Test Scores = 7.23

S.D. of Post-Test Scores = 6.27

APPENDIX B.

M A S S E Y U N I V E R S I T Y

DEPARTMENT OF PSYCHOLOGYCRITES' VOCATIONAL ATTITUDE TEST (FORM III)(VM AND D)Directions

Listed below are a number of statements about occupational choice and work. Read each statement and decide whether you agree with it or disagree with it.

If you agree or mostly agree with the statement put a circle around the T next to the question number. If you disagree or mostly disagree with the statement put a circle around the F next to that question number.

Be sure not to miss a question and check that your answers are next to the appropriate question number.

Black out completely any answer you wish to change.

1. You have to know what you are good at, and what you are poor at, before you can choose an occupation.
2. Ask others about their occupations, but make your own choice.
3. It's unwise to choose an occupation until you have given it a lot of thought.
4. Once you make an occupational choice you can't make another one.
5. In making an occupational choice, you need to know what kind of person you are.
6. A person can do anything that he wants as long as he tries **hard**.
7. Your occupation is important because it determines how much you earn.
8. A consideration of what you are good at is more important than what you like in choosing an occupation.

APPENDIX B Cont.

9. Plans which are indefinite now will become much clearer in the future.
10. Your parents probably know better than anyone which occupation you should enter.
11. Work is worthwhile mainly because it lets you buy the things you want.
12. Work is drudgery.
13. Why try to decide upon an occupation when the future is so uncertain.
14. It's probably just as easy to be successful in one occupation as it is in another.
15. By the time you are 15, you should have your mind pretty well made up about the occupation you intend to enter.
16. There are so many factors to consider in choosing an occupation, it is hard to **make** a decision.
17. Sometimes you can't get into the occupation you want to enter.
18. You can't go very far wrong by following your parents' advice about which occupation to enter.
19. Working in **an** occupation is much like going to school.
20. The best thing to do is to try out several occupations, and then choose the one you like best.
21. There is only one occupation for each individual.
22. The most important consideration in choosing an occupation is whether you like it.
23. Whether you **are** interested in an occupation is not as important as whether you can do the work.
24. You get into an occupation mostly by chance.
25. It's who you know, not what you know, that's important in an occupation.

APPENDIX B Cont.

26. Choose an occupation which gives you a chance to help others.
27. Choose an occupation, then plan how to enter it.
28. Choose an occupation in which you can someday become famous.
29. If you have some doubts about what you want to do, ask your parents or friends for advice and suggestions.
30. Choose an occupation which allows you to do what you believe in.
31. The most important part of work is the pleasure which comes from doing it.
32. It doesn't matter which occupation you choose as long as it pays well.
33. As far as choosing an occupation is concerned, something will come along sooner or later.
34. Why worry about choosing an occupation when you can't have anything to say about it anyway.
35. The best occupation is one which has interesting work.
36. I really can't find an occupation that has much appeal to me.
37. I have little or no idea of what working will be like.
38. When I am trying to study, I often find myself daydreaming about what it'll be like when I start working.
39. If I had a chance to go overseas for a year (eg USA or a working holiday in Australia) I would put off choosing an occupation until I got back.
40. When it comes to choosing an occupation, I'll make up my own mind.

APPENDIX B Cont.

41. I want to really accomplish something in my work - to make a great discovery or earn lots of money or help a great number of people.
42. As long as I can remember I've known what I want to do.
43. I can't understand how some people can be so set about what they want to do.
44. My occupation will have to be one which has short hours and nice working conditions.
45. The occupation I choose has to give me plenty of freedom to do what I want.
46. I want an occupation which pays good money.
47. I often wonder how successful I'll be in my occupation.
48. I know which occupation I want to enter, but I have difficulty in preparing myself for it.
49. I know very little about the requirements of occupations.
50. I want to continue my schooling, but I don't know what courses to take or which occupation to choose.
51. I spend a lot of time wishing I could do work that I know I cannot ever possibly do.
52. I'm not going to worry about choosing an occupation until I'm out of school.
53. If I can just help others in my work, I'll be happy.
54. I guess everybody has to go to work sooner or later, but I don't look forward to it.
55. I often daydream about what I want to be, but I really don't have an occupational choice.
56. The greatest appeal of an occupation to me is the opportunity it provides for getting ahead.

APPENDIX B Cont.

57. Everyone seems to tell me something different,
until now I don't know which occupation to choose.
58. I have a pretty good idea of the occupation I want
to enter, but I don't know how to go about it.
59. I plan to follow the occupation my parents suggest.
60. I seldom think about the occupation I want to
enter.

APPENDIX B Cont.

M A S S E Y U N I V E R S I T Y

DEPARTMENT OF PSYCHOLOGYCRITES' VOCATIONAL ATTITUDE TEST (FORM III, VM AND D)ANSWER SHEETDirections

If you agree or mostly agree with the statement put a circle around the T next to the question number. If you disagree or mostly disagree with the statement put a circle around the F next to that question number.

Be sure not to miss a question and check that your answers are next to the appropriate question number.

Black out completely any answer you wish to change.

1.	T	F	16.	T	F	31.	T	F	46.	T	F
2.	T	F	17.	T	F	32.	T	F	47.	T	F
3.	T	F	18.	T	F	33.	T	F	48.	T	F
4.	T	F	19.	T	F	34.	T	F	49.	T	F
5.	T	F	20.	T	F	35.	T	F	50.	T	F
6.	T	F	21.	T	F	36.	T	F	51.	T	F
7.	T	F	22.	T	F	37.	T	F	52.	T	F
8.	T	F	23.	T	F	38.	T	F	53.	T	F
9.	T	F	24.	T	F	39.	T	F	54.	T	F
10.	T.	F	25.	T	F	40.	T	F	55.	T	F
11.	T	F	26.	T	F	41.	T	F	56.	T	F
12.	T	F	27.	T	F	42.	T	F	57.	T	F
13.	T	F	28.	T	F	43.	T	F	58.	T	F
14.	T	F	29.	T	F	44.	T	F	59.	T	F
15.	T	F	30.	T	F	45.	T	F	60.	T	F

APPENDIX B Cont.

VOCATIONAL DEVELOPMENT QUESTIONNAIRE

Please read the instructions given with each question very carefully and answer as honestly as you can. The answers are to be marked on the separate answer sheet. There is no time limit to this test.

1. At what age do you think people should start thinking about what they want to do when they leave school?
(Put a circle around the option you choose).
(a) 10 - 12 yrs. (b) 13 - 15 yrs.
(c) 16 onwards.
2. When did you first start thinking seriously about what you might do when you leave school?
(Put a circle around the option you choose)
(a) 10 - 12 yrs. (b) 13 - 15 yrs.
(c) 16 onwards. (d) I haven't thought about it yet.
3. Mark with a tick if you have taken any of these steps when thinking of a job which might be suitable for you. (If you have done all these things, then you must tick all five, on the answer sheet please)
(a) Read pamphlets about the job.
(b) Talked it over with parents.
(c) Talked it over with someone who might know about the job, eg teachers, vocational guidance officer.
(d) Talked it over with someone who works in that job.
(e) Been to see the place where you might get a job.
4. Write down as many occupations as you can think of which involve working with things (objects rather than people).

APPENDIX B Cont.

5. Write down as many occupations as you can think of which involve working with people. (This does not mean your workmates but other people whom your job exists for).
6. Which would you rather work with. (Put a circle around the answer you choose).
(a) Things (b) People (c) Don't know
7. In any two jobs you know about (preferably two jobs you have thought of doing yourself), write down the things people do in these jobs.
8. In any two jobs you know about (preferably two jobs you have thought of doing yourself), write down the things people are likely to feel while working in these jobs.
9. In any two jobs you know about (preferably two jobs you have thought of doing yourself), write down the things that people need to know to work in these jobs.
10. In a job which you think you would like, what sort of physical conditions do you need, to make the job enjoyable? (eg indoors or out-of-doors, sitting down, or moving around, dressed up or casual clothes, noisy or quiet, and many others).
11. In a job which you think you would like, what sort of emotional conditions do you need, to make the job enjoyable? (eg a lot of responsibility or not, working alone or with others, work that involves helping people or not, and many others).
12. In a job which you think you would like, what sort of intellectual conditions do you need to make the job enjoyable? (eg being able to make your own plans, needing reading, writing or speaking skills, learning a lot, and many others).

APPENDIX B Cont.

13. What jobs could you take on if you left school to-morrow?
14. What training could you do which would lead to other kinds of jobs?
15. Name some jobs which you can't do yet because you don't have enough education.
16. Name some other things (apart from education) which makes you unable to do some jobs.
17. What job do you think you will do when you leave school?
18. What plans have you made to help you to take on this job?

APPENDIX B Cont.

VOCATIONAL DEVELOPMENT QUESTIONNAIREANSWER SHEET

1. a _____, b _____ c _____
2. a _____ b _____ c _____ d _____
3. a _____ b _____ c _____ d _____
e _____

4.

5.

6. a _____ b _____ c _____

7(1) Name of job:

What the people do in this job:

(2) Name of job:

What the people do in this job:

8(1) What people feel in this job:

(2) What people feel in this job:

APPENDIX B Cont.

9(1) What people need to know in this job:

(2) What people need to know in this job:

10.

11.

12.

13.

APPENDIX B Cont.

15.

16.

17.

18.

APPENDIX B Cont.

INTERVIEW QUESTIONS - A guideline only

1. Did you enjoy being in the Work Exploration Scheme?
2. Did you think it was useful being in the Scheme?
3. Why? or why not?

4. What sort of things did you learn about work and working, if anything?

5. Did any of you get into a job and hate it so much that you asked to leave it?

6. What was the reason you hated the job?

7. Did any of you find that once you were working in a job you always thought you'd love, that you didn't like it at all.

8. Have you any suggestions for ways in which the Work Exploration programme might be improved?

APPENDIX CMETHOD OF SCORING FOR THE VOCATIONAL DEVELOPMENTQUESTIONNAIRE

- Question 1 a = 3
 b = 2
 c = 1
- Question 2 a = 3
 b = 2
 c = 1
 d = 0
- Question 3 One tick = 1
 Two ticks = 2
 Three ticks = 3
 Four ticks = 4
 Five ticks = 5
- Question 4 0 responses = 0
 and Question 5 1 - 2 responses = 1
 > 2 responses = 2
 > 5 responses = 3
 > 10 responses = 5
 > 15 responses = 6
- Also Question 7, 8, 9, 10, 11, 12 and 16
- Question 6 a = 1
 b = 1
 c = 0
- Question 13 If the answer is feasible score 1
 If the answer is not feasible score 0
- Also Question 14, 15, 17 and 18.

NB: Feasibility of questions 13, 14, 15, 17 and 18 was subjectively assessed by the experimenter but was based on the educational level of the pupils and their likelihood (in the eyes of the experimenter and their teacher) of achieving a certain level in their occupations.

APPENDIX C Cont.

SCORING KEY FOR CRITES TEST

VM SCALE

4.	F	15.	F	27.	T	38.	F	51.	F
5.	T	16.	T	28.	F	39.	F	52.	F
6.	F	18.	F	29.	T	40.	T	53.	F
7.	F	19.	F	30.	T	41.	F	54.	F
8.	F	20.	F	31.	T	42.	F	55.	F
10.	F	21.	F	32.	F	43.	F	56.	F
11.	F	23.	F	33.	F	45.	F	57.	F
12.	F	24.	F	34.	F	48.	F	58.	F
13.	F	25.	F	36.	F	49.	F	59.	F
14.	F	26.	F	37.	F	50.	F	60.	F

D SCALE

1.	F	3.	F	17.	F	35.	F	46.	F
2.	F	9.	F	22.	F	44.	T	47.	F

APPENDIX DTHE PREVOCATIONAL WORK EXPLORATION SCHEME

The Prevocational Work Exploration Scheme was started in the school chosen for this study by the Student Counsellor, as an extension to the secondary school curriculum for those pupils who, according to their abilities and their grades will not sit School Certificate examinations. The scheme consists of a revised curriculum which is orientated towards daily living, and one day a week spent in a job of the student's choice.

Permission from parents of suitable pupils is sought at the end of the student's fourth form year. On entry to the fifth form the students are asked to select three jobs which they would like to work in - one for each term. The students may also "specialise" in one subject and sit School Certificate examinations in that subject, if they wish.

After the students have chosen their three jobs, the school attempts to find employment for them in the chosen fields. In many cases, students state firms they wish to work for and these firms are then approached by the school.

If the employers undertake to employ students, they are sent data to explain the scheme. The students work for the employers for one day a week, without pay, and the employer is under no obligation to provide permanent jobs for the students at the end of the year. The employers are asked to treat the students exactly the same as they would treat an apprentice.

Each student is assessed at the end of each job, by his employer, who fills out a form provided by the school. While working in a job the students are visited occasionally by one of the Work Exploration Class teachers.

APPENDIX D Cont.

Each student is covered for accident by the Accident Compensation Scheme.

Each student must experience at least two jobs. In the third term he may return to a previous job if he wishes.

In addition to this information there are copies of the forms the students fill in at the end of their fourth form year, letters to the parents, the assessment sheet, and the proposed school curriculum which was changed according to the individual teacher's approach.

APPENDIX D Cont.

WORK EXPLORATION CLASS

PUPILS NAME: _____ DATE OF BIRTH _____

ADDRESS: _____
_____TELEPHONE: Please give your home number and also a number to ring if there is no-one at home:

Home No: _____ Parents Work No: _____

TYPE OF WORK DESIRED:

1. _____
_____ Name of firm if you have a preference
2. _____
_____ Name of firm if you have a preference
3. _____
_____ Name of firm if you have a preference

HOW TO CHOOSE THE JOB:

You must think carefully before you choose the jobs. You will be in each one for a whole term, one day a week, so you must be sure you will not get tired quickly of the jobs you choose. We do not want to make changes if we can avoid it. You should go for the type of job that you think you may take up when you leave school. We need to have three suggested jobs from you so that we can at least get one of the three for you, if not your first choice. Write the three jobs in the above spaces in order of your preference and we will try to get for you your first preference. If you are not sure what to put, call and see Mr Wadsworth at his office at 12.45 pm one day this week.

OPTION SUBJECT:

You may choose one option subject from the list below and you may sit for School Certificate in it if you wish:

Art, Clothing, Home Economics, Commercial Practice, Geography, Typing, Shorthand Typing, Woodwork.

THE OPTION I HAVE CHOSEN IS: _____

APPENDIX D Cont.

QUEEN ELIZABETH COLLEGE

FIFTH FORM WORK EXPLORATION CLASS 1974

Dear Parent,

This year I have introduced a Work Exploration Class at the fifth form level. The students selected for the class spend four days of the week at school and the fifth (Wednesday) at work. Their course at school comprises English, Social Studies, and Mathematics/ Science course and one other option subject such as Engineering or Home Economics. The class is not intended to prepare students for School Certificate but it is possible to sit this examination in one subject.

There are several purposes behind the introduction of this course. One is to provide a course for the students who do not wish to take the School Certificate examination, who do not need to take it, or who would find things very difficult if they did take it. Another is to help students decide realistically what employment to enter when they leave school and a third is to help students mature more quickly by placing them in an adult situation for part of the week. The class is a relatively small one and it will be a privilege to be in it. A lot of its success will depend on the goodwill of employers and students will be selected for the course on their ability to co-operate and act responsibly when out of school.

Students will work a normal work day, will wear clothing appropriate to the job and will not be paid. They will be insured and I have the co-operation of the Departments of Labour and Health and of the Trades Unions. The plan is to allow students to work in two different types of employment during the year. Once a boy or girl is selected for the course, he or she will choose

APPENDIX D Cont.

two occupations and the teacher in charge of the Work Placement side of the scheme will attempt to find suitable employers. At the beginning of each placement, the students will spend three days at their employment in order to get used to it and thereafter one day a week. The English, Social Studies and Mathematics/Science subjects are designed to prepare young adults to take a full part in the life of the community and to handle most of the tasks and challenges that come their way when they leave the school. Schools which have been able to get away from the tight academic School Certificate courses have also been able to provide a very worthwhile and even exciting education and I hope this school can do the same. For 1974, our Guidance Counsellor, Mr Wadsworth, is in charge of the scheme, and Mr Jennings and Mrs Heppleston handle the Work Placements.

I have been very impressed by the maturity of the students who have gone through similar courses in other schools and I am very pleased to be able to offer it at this College. For those fortunate students who are accepted for it, it will be the highlight of their secondary education. I must also tell you that I retain the right to select those students who will take part. If you are prepared to give your consent, would you please sign the Return Slip and have it brought back to school.

Yours sincerely,

T.N. Worthington
PRINCIPAL

APPENDIX D Cont.

WORK EXPLORATION SCHEME

NAME: _____ FORM: _____

I have read the conditions of this scheme and give my consent to my son/daughter participating in it. I understand that I will be contacted personally if my son/daughter is selected for it.

(Signature of Parent/Guardian)_____
Date.

APPENDIX D Cont.

QUEEN ELIZABETH COLLEGE

ASSESSMENT OF STUDENT ON WORK EXPLORATIONSECTION AWORK HABITS AND EFFICIENCY

	Above Average	Average	Below Average
On Time			
Safety Conscious			
Completes Work on Time			
Understanding of Work			
Initiative			
Careful with Materials and Property			

SECTION BPERSONALITY AND SOCIAL ADJUSTMENT

	Above Average	Average	Below Average
Self-Confidence			
Cheerfulness			
Co-operation with Supervisor			
Co-operation with other Workers			
Respect for Supervisor			
Minds own Business			
Accepts Criticism			
Mixes socially with other Workers			
Neat and Clean in Appearance			

These assessments are made in comparison with other apprentices or young people learning the job.

Date _____

Signed _____

APPENDIX D Cont.

QUEEN ELIZABETH COLLEGE
WORK EXPLORATION FIFTH FORM SCHEMES 1974
ENGLISH AND SOCIAL STUDIES
THE TOPIC APPROACH

1. Employment - Pollution - Manufacturing
2. Leisure and Travel
3. Community and Government Services - Law
4. Human Relationship - adolescence - school - population
5. Health - Nutrition
6. Communication - Advertising - Propoganda
7. Consumerism.
8. Housing - Flatting - Survey of a suburb
9. Philosophy - (Prejudice) - Politics
10. Societies - NZ.
11. Geography

TOPIC 1 EMPLOYMENTSocial Studies

Visit places of Employment.
 Vocational Guidance Officer
 Trade Unions
 Organisational structures
 at places of work.
 (Use 3rd Form S.S. Text)
 Job satisfaction
 (Invite Values Party Speaker)
 Problems which arise from
 employment
 Compensation
 Unemployment: Problems
 Study the Depression and
 its effects in NZ

English

Writing letters
 Interviewing
 techniques
 Newspaper work
 Using table of
 contents and index
 Abbreviations
 Novel:
Poverty "Children of
 the Poor"
 "Shining with the
 Shiner"
 both by John A Lee.

TOPIC 1a POLLUTION

Population explosion
 World's resources eg oil,
 petrol
 Brief study of a developing
 country and of a developed
 country
 Urban growth
 Urban Geography
 Visits - Sewage Treatment
 Speakers - Ecology Action

Write poetry
 Visit dump - Write
 essays
 Read "Run Baby Run"
 example of poverty
 in a large urban area

APPENDIX D Cont.

TOPIC 1b MANUFACTURING

Visit large Factory	Reading Instructions
Processing - follow an article along production line.	Comprehension
Visit - farming - Primary industry - Secondary Industry, eg freezing works.	

TOPIC 2 LEISURE AND TRAVEL

Arranging a camp. Learning some of the basic skills in conjunction with the Outdoor Pursuits Programme.

Arrange with Arts Adviser (Wanganui Education Board) to come in and organise a craft week, where students have the opportunity to explore different media.

Arrange with clubs to come and inform students of their activities.

Experience different games and activities, eg squash, chess, etc.

Travel Agencies	Advertising
-----------------	-------------

TOPIC 3 COMMUNITY AND GOVERNMENT SERVICES - LAW

Visits to Post Office etc

The Law: Study from the SS. Text "Crime"

Speaker: Lawyer, Sociologist, Magistrate

TOPIC 4 HUMAN RELATIONSHIPS

Sex instruction
(Programme to be constructed)

Novels "Catcher in the Rye"

Marriage. Use "Connexion" series

"The Godboy"

"Pounamu Pounamu"

Childcare - Birth - Visit Hospital

"The Pearl"

Parent - Child relationships

Play "Taste of Honey"

The adolescent - his problems societies attitudes etc

Essay Writing

Reading Skills

TOPIC 5 HEALTH AND NUTRITION.

Shopping - Visit Supermarket

Budget - for food

- types of food (Calories) etc

Smoking - Drinking - Drugs

APPENDIX D Cont.

TOPIC 6 COMMUNICATION

Mass Media
 Advertising - Propoganda
 Make a Film.

TOPIC 7 CONSUMERISM

A consuming society "The Hidden Persuaders"
 Vance Packard.
 A materialistic society
 Values other than
 materialism
 Co-operative versus
 competitive man
 Man as an end in himself.

TOPIC 8 HOUSING

Survey of a suburb Note taking skills
 State Advances - Loans Read extracts from "Exodus,
 Mila 18"
 Flatting - Cooking,
 Budgeting.
 Why choose an area?
 (Survey)
 State Housing - Historical
 - 1st Labour
 Government
 Communes/"Kibbutz" (Israel)

TOPIC 9 PHILOSOPHY - POLITICS

Prejudice - Invite speak- Read "To Kill a
 ers in eg other racial Mockingbird"
 groups "Black Like Me"
 Politics - Short resumé Poetry
 of political ideologies
 Brief study of an altern-
 ative society with
 different political
 structures
 Speakers
 Philosophy - Try to examine
 some ethics and morals from
 within our society using
 students experiences

APPENDIX D Cont.

TOPIC 10 SOCIETIES NZ

An overview of our society
both sociological and
geographical

N.Z. Literature,
Poetry and Plays

TOPIC 11 GEOGRAPHY

A brief study of places of interest within N.Z.
and the world. Effect of physical environment
on life-styles.

APPENDIX D Cont.

QUEEN ELIZABETH COLLEGE

WORK EXPLORATION FIFTH FORM SCHEMES 1974MATHEMATICS SYLLABUSINTRODUCTION:

The Mathematics Scheme is designed to tie in closely with the topics being discussed in other subject areas. However, at the beginning of the year the pupils will need to cover a brief course in computational skills and mathematical methods, which will need to be dealt with initially in isolation, but which will receive a great deal of reinforcement as the year progresses.

INTRODUCTORY WORK:

This work will cover the four arithmetic processes (addition, subtraction, multiplication, division) in numbers, money and decimal fractions. The only contact needed with vulgar fractions is the conversion of the common vulgar fractions ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$, $\frac{1}{3}$, $\frac{2}{3}$) to decimal fractions.

TOPIC 1 EMPLOYMENT

1. Wages -

conversion from weekly wage to annual salary and vice versa

tax rates, percentages, and filling in of tax forms

logarithms as a means of calculation for trades apprentices

graphs of population distribution (pie graphs, bar graphs, picture graphs)

an attempt to assess the production cost of an article (requires two visits to the factory - see details in "Mathematics Newsletter October 1973 No 2")

TOPIC 2 LEISURE AND TRAVEL

conversion graphs; miles to kilometres, gallons to litres and miles/hr to km/hr

cost of travel including comparisons between air, land and sea, land travel to include a comparison between private car (with details of all expenses, including hidden expenses such as registration and insurance), rail and bus.

APPENDIX D Cont.

insurance types and costs for travel and transport of belongings, leading to all other forms of insurance with comparisons, if possible, between various companies' rates, and various types of insurance, eg whole of life vs endowment vs equity linked, or full car insurance vs third party only

map reading, scale factors

statistics in relation to gambling and lotteries

representation of chess moves (uses idea of ordered pairs on cartesian plane)

mathematical games (vector racing cars, battleships etc) and puzzles

conversion of times events (drag racing, 100m sprint, swimming etc) to average speeds

TOPIC 3 COMMUNITY AND GOVERNMENT SERVICES

investigate postal rates and calculate postage for various sized parcels between different zones using weight vs charge graph.

study the Government Budget - percentages, pie graphs, column graphs showing changes in expenditure

investigation of, say, Railways Department, with itemisation of expenditure and revenue leading to a simple balance sheet.

TOPIC 4 HUMAN RELATIONSHIPS

Mathematical relations arising from kinship relationships illustrated by various methods

height vs age and weight vs age graphs

Balance sheet for school expenses

TOPIC 5 HEALTH

budgeting (a large topic)

comparison of prices eg 100gm for 45c vs 130 gram for 57c.

TOPIC 6 COMMUNICATION

cost of advertising in various media

estimation of advertising income for a paper
statistics, including finally their use and abuse.

APPENDIX D Cont.

TOPIC 7 CONSUMERISM

costs involved in hire-purchase
 costs involved in use of a deep freezer
 expenses and profits involved for a heavily
 advertising company versus a low advertising
 company.

TOPIC 8 HOUSING

loans and interest (housing and personal)
 calculating the amount of paint, wallpaper or
 carpet required for various jobs, and the costs
 involved.
 metric length and area measurements including
 section area measurements in hectares and acres
 metric liquid, weight and temperature measure-
 ments for cooking

TOPIC 9 PHILOSOPHY

an investigation of the proportion of various
 ethnic groups in different countries, and a
 comparison of populations of different countries,
 and of different religions and different ethnic
 groups throughout the world, including an
 investigation of the percentage of the world's
 population represented by the United Nations,
 and those considered under-developed, developing
 and developed

an investigation of Gross National Product, its
 meaning and calculation.

TOPIC 10 SOCIETIES

from Topic Nine a closer investigation of NZ
 Society in terms of ethnic groups, income groups
 occupation groups, age groups, and land popula-
 tion distribution

a close look at voting figures in a Government
 election including numbers of people represented
 by each candidate.

TOPIC 11 GEOGRAPHY

trigonometry, leading to practical work calcu-
 lating the area of certain pieces of land, the
 distance between various points, and the heights
 of various land forms

practical construction of a contour line around
 a hill.

the construction of three-dimensional models from
 a contour map.

the choosing of a suitable path for a road or rail-
 way line through a particular piece of country by
 studying a contour map.

APPENDIX D Cont.

QUEEN ELIZABETH COLLEGE

WORK EXPLORATION FIFTH FORM SCHEMES 1974SCIENCE SYLLABUSINTRODUCTION

It is the intention of the Science content of this Work Exploration Scheme that the principal theme of learning to live a balanced, satisfying and productive life be strongly supported. To this end, Science topics have been chosen for their interest and relevance to the adopted thematic approach. It is hoped that students will gain information not only of direct value, but which will quicken their interest as leisure time activities, and also assist them to keep up with the changing world of the future.

TOPIC 1 EMPLOYMENT

- (a) Work environment -
an analysis of the work situation in terms of space, lighting, heating, ventilation.
- (b) Ecology -
idealised community, energy flow in communities
- (c) Pollution -
ecological consequences of the presence of noxious animals and plants, water pollution, sewage disposal, pesticides, mono-culture, overcropping, overgrazing, burning of rural and catchment areas, recycling, air pollution.
- (d) Population explosion -
reasons for increasing population. Urban sprawl, problems of over-population.
- (e) The World's resources -
particular reference to be given to the resources of NZ. The atmosphere (nitrogen, oxygen and carbon dioxide), chemicals from the ocean (sodium chloride), minerals from the earth (clay, sand, limestone, iron ore, aluminium, coal, petroleum, natural gas).

APPENDIX D Cont.

(f) Secondary industry -

The growth and nature of manufacturing in NZ.

the type and size of secondary industries in the local region, and a brief analysis of their raw materials, processes, and methods of waste disposal.

(g) Primary industry -

the importance of primary industry in the NZ economy.

the principles underlying animal and crop farming - breeding, importance of weather, disease prevention, feeding and nutrition, harvesting, labour.

TOPIC 2 LEISURE AND TRAVEL

(a) Health and fitness pursuits -

leisure activities which improve the fitness of body and mind

(b) Survival -

Principles of survival in the outdoors

(c) Travel -

varieties of transport available for travel.
health requirements for travelling overseas.

(d) Hobbies -

basic geology, astronomy, electricity, car maintenance, etc.

TOPIC 3 COMMUNITY AND GOVERNMENT SERVICES

Contribution of science to resolution of community problems: scientific surveys of the problem, use of the scientific method in defining and measuring social problems, existence of the social sciences.

TOPIC 4 HUMAN RELATIONSHIPS

(a) Growth and development of man -

reproductive systems of male and female; ovulation and menstrual cycle; foetal development from fertilisation to birth; stages of physical and mental maturation; hormonal control of growth and development.

(b) Genetics -

chromosomes and simple meiosis; sex determination in man; concept of the gene - simple cases of inheritance in man (eye colour, colour blindness, tongue rolling, tasting, greying of hair).

APPENDIX D Cont.

TOPIC 5 HEALTH AND NUTRITION

- (a) Our bodies -
skeletal system, muscular system, nervous system, circulatory system, respiratory system, digestive system, excretory system, ductless gland system.
- (b) Micro-organisms and Disease -
bacteria, viruses, parasitic fungi, disease and its control, evolution of resistant bacteria.
- (c) Food classes and Tests -
carbohydrates, proteins, fats, mineral salts, vitamins.
- (d) Meal Planning and Diet -
cooking, storage and handling of foods; methods and principles of food preservation.
- (e) First Aid.
- (f) Introduction to medical science.

TOPIC 6 COMMUNICATION

- (a) Sense receptors in man.
- (b) Principles behind radio (broadcast and short-wave), television, telephone, radar, the radio-telephone network of a city, electromagnetic spectrum.
- (c) The postal service.
- (d) The printed word.
- (e) Communication by the blind and deaf.
- (f) Satellites and elementary space travel.

TOPIC 7 CONSUMERISM

- (a) The principles behind choice of purchase
- (b) Introduction to the Consumers' Institute.

TOPIC 8 HOUSING

- (a) Building materials -
variety, strength, quality and cost of wood, concrete, brick, metal joinery and roofing (relative reactivity of metals), plastics, glass, etc.
- (b) Basic electricity -
simple circuitry, power ratings of lights, radiators, oven etc, fuses and earthing systems, isolation transformers, reading a switchboard.

APPENDIX D Cont.

- (c) Light -
basic properties, illumination, lenses and mirrors.
- (d) Natural gas and Petroleum -
nature and benefits as fuels.
- (e) Water -
hard and soft waters, fluoridation, water pressures, drainage (surface and waste), water supply and purification.
- (f) Home Repairs -
principles of repairs and redecoration.
- (g) Home Gardens -
vegetable and flower gardens; soils and nutrients; shrubs and trees.

TOPIC 9 PHILOSOPHY - POLITICSTOPIC 10 SOCIETIES OF NEW ZEALAND

- (a) The influence of science and technology on our society

TOPIC 11 GEOGRAPHY

- (a) Land Forms
- (b) Weather and Climate
- (c) Vegetation
- (d) Geology
earth's structure, minerals, volcanoes and earthquakes, structural geology, ground water, erosion and deposition, coastal physiography, fossils, geological time.
The geological structure, stratigraphy and physiography of the local region.

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