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THE RELATIONSHIP OF ACADEMIC APTITUDE AND STUDY
HABITS TO ACADEMIC SUCCESS: A STUDY OF FIRST
YEAR STUDENTS' EXPERIENCE OF ACADEMIC LIFE
WITH SPECIFIC REFERENCE TO
THE UNIVERSITY OF FORT HARE

Dissertation

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DOCTOR OF PHILOSOPHY
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Alice, 1979.

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PREFACE

WHO WANTS TO BE MOTHERED?

*Do not do things for me, let me do them.
Think no thoughts for me, let me think them.
You bore me with your thoughts;
Who wants to be mothered?*

*As a baby, mother carried me,
On her back she bound me tight.
As a boy she let me run.
In front of her she let me run.*

*As a lad she let me roam,
Away from home I could even roam;
She knew what she was doing
So do not mother me.*

*On her breast she suckled me, as a baby;
On goat's milk she fed me, as a boy;
But as a lad, I learnt to feed on roots
Far away across the veldt.*

*I knew my home and who my mother was,
She knew I would return and return I did.
Return I did and loving remained.
To trust her I learnt, obey her, never questioned.*

*Live for me she never tried.
Live for myself, thus did I learn.
I know my goal
So do not mother me.*

*Show me the way, do not walk the way for me.
My legs are strong, my head not closed, O please not closed.
I know my goal so
Do not mother me.*

Basil Somhlahlo

A NOTE ON THE PRESENTATION

All referencing has been made according to the "Harvard" method. As footnotes make for difficulties when typing the manuscript, where notes and figures are indicated they appear at the end of the relevant chapter. Where tables and figures are not included in the text, they are also to be found at the end of the relevant chapter. Appendices are found at the end of the manuscript.

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I

CHAPTER ONE

AN OVERVIEW OF THE RESEARCH

- 1.1 Introduction
- 1.2 Aims of the study
- 1.3 Outline
- 1.4 Problems Encountered

CHAPTER ONE

AN OVERVIEW OF THE RESEARCH

1.1 INTRODUCTION:

Any enquiry follows some incident which has prompted the question that leads to the enquiry. This study was prompted by a review of the 1974 first year examination results at the University of Fort Hare. The overall percentage pass rate for that year was 59.3%.⁽¹⁾ The cynic may remark that this is no different to the first year pass rate at white South African universities (cf. Erens and Louw, 1978), but when it is realised that students entering Fort Hare, or any other black university for that matter, are a highly select group,⁽²⁾ these figures have more impact. The consequences of failure in terms of the wastage of human potential are immense (cf. Auerbach, 1977) but are more critical when this occurs, as it does,

"... in a society which is competitive rather than co-operative, where people are for ever being classified according to what they have rather than what they can contribute and where competition plus classification inevitably breeds fears."

Bligh (1978).

A review of the first year examination results for the five years from 1971 revealed an overall pass rate of 55.5% and for 1976, 1977 and 1978 a marked decline to 39.32%.⁽³⁾ (Table 1). For the earlier period, Downing (1977) found that 19.69% of students completed their degree courses in the minimum number of years. For the latter period (1976 to 1978) this has dropped to 16.3%, which, with the figure for the earlier period, suggests that whilst the failure rate may be highest at the end of the first year, in subsequent years it is also high. In this respect Fort Hare differs from white universities where about 75% of students complete their degrees in minimum time (cf. Erens and Louw, 1978).

1.2 AIM OF THE STUDY:

The principal aim of the study is to examine the relationship of academic aptitude and study habits of first year students to academic success. Two subsidiary aims emerged through the research.

First, to examine the suitability of the Human Sciences Research Council's Academic Aptitude Test Battery (A.A.T.)(University) as a screening and counselling device.

Second ...

Second, to examine the complex interactive situation in which learning takes place and how students respond.

1.3 OUTLINE:

An overview of the study is provided in Appendix 1.1. The flow diagram represents in time sequence the major questions asked and decisions taken. For the sake of clarity it represents a 'smooth synthesis' and not the 'rumpled reality'.

Chapter two focusses on a review of pertinent literature. This was undertaken to enable me to formulate a research design and a set of procedures. The development of the initial research design reflects a concern to establish whether or not a relationship existed between academic success, on the one hand, and certain variables comprising academic aptitude, motivation, study habits and attitudes, and matriculation results, on the other. At this stage I was concerned with knowing whether or not a particular relationship existed. As the preliminary data was analysed I realised I was working in a context of rapid and differential change and I began to ask why certain trends appeared to be the case. The latter half of chapter two outlines the shift in emphasis which took place in my thinking as I accepted and responded to the complexity and uniqueness of the interactive situation. It was necessary to develop a characterization of the situation being studied in terms of the perspectives of the participants in that situation and no longer in terms of a prescribed set of categories. Justification is sought for this paradigm shift.

The questionable predictive quality of the matriculation examination and the high first year failure rate prompted the quest for a means of identifying students 'at risk'. Behind this aspect of the study was the belief that some attempt should be made to intervene in the process at an early stage before the students are condemned to educational failure. The measure or index needed to be simple, easily applied yet sufficiently effective so that those employing it could be sure that they could pick up a large proportion of potential failures. Chapter three outlines a study of the Academic Aptitude Test Battery (A.A.T.)(University), a battery designed by the Human Sciences Research Council to meet such identificatory needs. A comparison is made with the matriculation results to assess the relative effectiveness as an index of academic success.

It was apparent when talking to students about their study habits and academic difficulties, and when analysing these problems, that learning does not take

place ...

place in a vacuum. It is embedded in an complex interactive situation. The focus of the rest of this study was on illuminating this and especially the way students work within this situation.

In chapter four the learning milieu is considered. Two major issues are focussed upon: first, how students perceive the functions of the university, and knowledge, learning and success; and second, whether or not their perceptions are change orientated or conservative. The analysis of the reasons for poor academic performance in chapter five was approached from two perspectives; the problems perceived by the students themselves, and the problems perceived by the staff. Although perceived differently the problems appeared to hinge around two important areas of conflict. First, the nature of the demands of a university education and the mismatch in their (staff and students) respective expectations. Second, the impact of the context at a macro and micro level. Serious consequences for scholarship are seen to flow from a seeming lack of trust and commitment, and from a functional view of the university and of learning. The extent to which this is apparent in the teaching-learning situation was assessed in chapter six. Students were observed in two learning situations and the interaction which occurs provided further evidence of the manner in which students perceive the nature of learning and also reflects the ecology of the teaching-learning situation.

1.4 PROBLEMS ENCOUNTERED:

Three major problems were experienced in the course of this study. First, the consequences of campus unrest and the closing of the university on three occasions during the course of this study cannot be assessed in any meaningful way. The tension preceding and following these occasions inevitably influenced the acceptance or otherwise of my questioning. It is also difficult to assess how these events affect the end of year examination results. Certainly in 1976 when the university was closed for nearly two and a half months, the drop-out rate increased sharply. My test population was reduced by 40%.

The lack of trust and confidence which pervades the campus is reflected in both staff and student comment and is an additional dimension which had to be considered in illuminating the total situational ecology. Second, being a white researcher and staff member at the same time led to differing expectations by the students. At one level there existed the deference norm, at another students made sure I was aware that the evidence I was collecting was possible only because they gave their 'permission'. In a sense, there

was a 'bargain' involved and when it was perceived that they had little or nothing to gain from the interaction, I was snubbed or avoided. (cf. Chapter Six). Alternatively, at times I may have been given what it was thought I wanted to hear, whether the perception was accurate or not. Precautions were taken to detect and avoid this. Third, most tests of motivation, attitude and study habits are of the inventory type comprising, as they do, an arrangement of a set of items or questions which centre about certain observed and labelled reaction patterns or tendencies. These items are then standardised in a test form and presented to the subjects in order that they may rank themselves. Their scores are then evaluated in terms of the norms. Such a procedure would have immediately separated me from the student in action who cannot, in that action, have such precise and permanent formulations as empirical research procedures demand. In spite of the problem of being existentially distant from the population I was studying, it became evident that the use of standardised questionnaires or inventories would result in stylised and superficial responses. I would not be able to illuminate the complexities of the attitudes and anxieties, the contradictions and anger, which form the truth or reality of the lives of these students. Hence different procedures were required which were at times idiosyncratic responses to an immediate situation. Interpretation became central to my activities. As such it represented a shift from the nomothetic to the idiographic. The associated difficulties are discussed throughout the study.

Relatively minor problems were also experienced. A limited budget was spent entirely on the aptitude test materials. The recommendations making up chapter seven emphasise the need for a well funded and staffed interdisciplinary project to be launched into student counselling. A second problem concerned the attitude of the university authorities to my activities and findings. Whereas the university covered all the costs of the test materials and set aside two days annually for testing and whilst staff were generally supportive, the passing by senate of a decision requiring that the Rector's permission be obtained before publishing or making a public statement based on any investigation carried out at Fort Hare posed a threat to the openness with which the study had hitherto been conducted. The passing of this motion in 1977 arose out of a press report on certain preliminary findings in this study.

FOOTNOTES

- (1) To be permitted to register for the second year of study a student must pass at least two courses. Departmental and faculty regulations state which subjects must be passed in certain instances, especially where certain major subjects are prescribed. (cf. Social Work). The Academic Exclusions Committee in arguing that ...

"... the selection process should take place as far as possible at the first year level."

would appear to acknowledge the likelihood of a high first year failure rate. In this study, failure is taken to mean any student who fails to pass two or more courses at the end of the first year.

- (2) Taken as a percentage of the total enrolment at school in 1977, 12.4% of white students were at university whereas 0.4% of black students were at university. Given, also, that school education is compulsory for whites and not for blacks, the number of blacks at university per potential number at school is extremely small. As such these students are an extremely select group. (Based on figures presented in the South African Institute of Race Relations 1978 Annual Survey).
- (3) This marked decline in the pass rate over the past three years is not easy to explain. The quality of the intake, based on matriculation results only, has declined slightly with the percentage of students with a first class matriculation pass having decreased from 6.8% in 1976 to 5.5% in 1978. The unrest on the campus and in black high schools and its consequences for scholarship is perhaps another factor. Whatever the reasons, it would seem all the more important for students at risk to be identified early in their careers.

TABLE I

PERCENTAGES PASSES AT FIRST YEAR LEVEL

Faculty	N students registered for the first time 1971 - 1975	N pass	% pass
Arts	606	419	69.1
Science	694	328	47.3
Economic Sciences	407	207	50.9
Law	314	172	54.8
Agriculture	156	69	44.2
Education	142	88	61.9
Theology	18	15	83.3
Total	2337	1298	55.5

The above figures were extracted from the student record cards held by the university registry. Since 1976 a computerised student records system has been developed. The following figures have been obtained for 1976, 1977 and 1978.

TABLE I (cont.) ...

TABLE I (cont.)

Faculty	N students registered for first time			N pass			% pass		
	1976*	1977	1978	1976	1977	1978	1976	1977	1978
Arts	188	129	159	97	88	90	51.6	68.2	56.6
Science	152	119	164	43	43	58	28.3	36.1	35.4
Economic Sciences	158	83	137	36	41	68	22.8	49.4	49.6
Law	88	96	72	31	22	26	35.2	22.9	36.1
Agriculture	79	29	67	10	8	17	12.7	27.6	25.4
Education	43	54	86	18	19	30	41.9	35.2	34.9
Theology	3	5	4	3	3	2	100.0	60.0	50.0
Total	711	515	689	238	224	291	33.5	43.5	42.2
Total for 3 years:	1915			Total passed:	753		% pass rate: 39.32%		

* These figures include students who did not return after the closing of the university following the Soweto riots and campus unrest.

CHAPTER TWO

A CONSIDERATION OF THE RESEARCH DESIGN

2.1 A Review of Pertinent Research

2.1.1 Introduction

2.1.2 Factors seen as predictors of academic success

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CHAPTER TWO

A CONSIDERATION OF THE RESEARCH DESIGN

2.1 A REVIEW OF PERTINENT RESEARCH:

2.1.1 INTRODUCTION:

The initial conception of this study was based within a well-established empirical research tradition. It reflects what Suppe (1974) calls the "*Received View*" of science in which the data of observation consists of 'brute data' (Taylor, 1978) i.e. data anchored in a certainty beyond subjective intuition. The path to true knowledge is seen to repose crucially on the correct recording of occurrences, and verification is grounded ultimately in the acquisition of this brute data. The validity of this data cannot then be questioned by offering another interpretation or reading without this being founded on further reasoning.

As has been indicated, I was concerned initially to develop an instrument for identifying students at risk, i.e. those most likely to have to repeat their first year of study, or take longer than the minimum number of years to complete their degrees. As such this study began as a prediction study and was concerned with identifying factors associated with academic success and failure.

An extensive literature search was undertaken to enable me to formulate a research design and set of procedures, as well as some guidelines towards which variables to consider. British, American, Canadian, Australian and New Zealand studies were reviewed as well as a number of South African ones. The following predictive variables were most commonly used in these studies:

- (i) Time spent studying
- (ii) Study habits
- (iii) Study behaviour
- (iv) Attitude towards education
- (v) Achievement motivation
- (vi) Type of assessment
- (vii) Personality variables⁽¹⁾
- (viii) Aptitude and other intellectual factors.

Having considered a wide cross-section of studies I was faced with decisions about which tests or batteries to use and the critical issue of their suitability for African students. The latter issue was to have a fundamental bearing on the direction the research took and ultimately on the shift from one research tradition to another. Finally, decisions had to be made about the research methodology.

It is the purpose in the first part of this chapter to identify in the literature a series of variables which have been predictive of academic success, to outline the decisions governing the choice of test batteries and to outline what appeared to be the 'consensus' research procedures. Thereafter, the initial research design will be reconsidered and finally a proposal made.

2.1.2 FACTORS SEEN AS PREDICTORS OF ACADEMIC SUCCESS:

A detailed review of the extensive literature on this subject is beyond the scope of this study. My intention is merely to highlight studies relevant to my needs in the early formative stages of this study.

In examining the research available on the relationship of particular intellectual (aptitude-achievement scores or course marks) and non-intellectual (motivational and attitudinal measures) factors to academic performance, particular attention is paid to the factors focussed upon, the degree to which researchers found or did not find a relationship, and the procedures followed.

2.1.2.1 Time studied and performance:

The simplest studies involved the correlation of the number of hours spent studying in a particular week to academic performance. Using detailed interviews with a view to obtaining exact information as to what students were doing and how they were doing it during a period of time immediately preceding an interview related to the students' study habits, Thoday (1967) reported a ...

"fairly clear relationship between examination results and the amount of work done."

Gibbons and Savage (1965), in reporting a study by May state that the correlation between a measure of study time and academic success was as high as 0,71. This conflicted with other studies reported by them. Jex and Merrill (1965) found that the amount of time devoted to private study was not a crucial factor in the achievement of academic goals. In a New Zealand study, Small (1966) found that successful students did not differ from those who were partially successful in the amount of time spent in private study, although he found that unsuccessful ones spent much less time.

Associated with time spent studying is the time spent on extra-curricular activities. No simple relationship between these variables is evident from the studies reviewed and it is apparent that personality variables intervene

and ...

and influence the relationship between performance and social/extra-curricular variables. Malleson (1967) found that students who participated in extra-curricular activities achieved fewer first-class degrees and more poor degrees than those students who isolated themselves socially. He did, however, point out that the influence of extra-curricular participation on academic performance depended on other factors such as the maturity and ability of the student, the extent to which a student could exercise his judgment in dividing up his time, and the failure rate in the department. This ability to exercise judgment appears to be one of the reasons for the different findings of Kelvin, R.P., Lucas, C.J. and Ojha, A.B. (1966) who found that unsuccessful students participated less in social activities than successful students.

Hopkins, Malleson and Sarnoff (1958) found no correlation between hours of work reported and academic achievement.

Malleson developed a technique used by Fisher and Cotsonas (1965) at the University of Illinois, whereby students in the College of Medicine were asked to keep diaries of their activities over a three day period. Each seventh of the class began their diaries on a different day of the week. Eleven variables were established and these were correlated with academic achievement. Fisher and Cotsonas found that achievement was not significantly correlated with time spent in study. Cooper and Foy (1969) confirmed this in their study.

Entwistle and Entwistle (1970) drew up a specially designed grid to help students remember how many hours they work and from which the number of hours worked during a week could be derived. Using this method Entwistle and Percy (1973) reported a significant relationship between hours worked and degree results. Hinrichsen (1972) obtained estimated self-reported study behaviours from 144 undergraduate students. Using a step-wise multiple regression he found that the best predictor of academic performance was the Verbal Scholastic Aptitude Test Scores and effective study time per week.

In general, however, researchers make two main points: that students should be aware of the need to use available time effectively and efficiently; and that the use of 'correct' study methods is relative and depends very much on other factors.

2.1.2.2 Study habits and achievement:

A review of the pertinent research reveals that the assumption that 'good' study habits result in academic success is not entirely accurate. Whilst early studies attempt to correlate study habits and academic achievement during the last twenty years most research has concentrated on a multi-variable correlation of some or all of the following variables: study habits, attitudes, personality dimensions, motivation, interest and aptitude; with academic achievement. It has been success orientated, and failure orientated, and concerned with what makes a 'good' student and what makes for study difficulty. This is essentially a question of interaction since researchers are asking if the difference between the successful and the unsuccessful occurs for different reasons.

It has already been pointed out that time spent on studying is a useful index of motivation; but the more motivated and interested students not only spend more time, they probably study more effectively. Research indicates that high achievers tend to be more systematic and consistent in that they read more references, make better use of the library facilities and attend to pressing tasks immediately. These more effective study methods suggest higher motivation. Burgess (1956), Schutter and Maher (1956) and Maher (1959) found that when ability was 'controlled' there was a positive correlation between study habits and academic performance. Similarly Diener (1957) and Knaak (1957) and Ahmann, Smith and Glock (1958) found a positive correlation between study habits and academic performance and that, without controlling ability. Other studies by Wrenn and Humber (1941), Brown and Holtzman (1955), Holmgren (1972), Popham (1960) and Small (1966) confirmed the positive relationship of good study habits to academic performance.

Jamuar (1958), in a study on a sample of 200 Indian College students, investigated the differences in study habits of high achieving and low achieving students. A significant correlation of 0.51 ($p = 0.1$) between study habits and achievement was obtained. In a later study the same author (1962) again found that study habits were related to academic achievement. Curran (1960) also found in his study of college first year students that there were significant differences in study habits and attitudes of under-achieving, average achieving and high achieving students of both sexes. Pond (1964) found that high achievers reported that they organised their studying and time allocations, worked during free periods, and tried to improve their study techniques. Under-achievers did not consider organized study to be important and sought to excuse their poor performance. Although

Sherman (1971) found no extreme differences between study habits and techniques of successful and unsuccessful students he did find that students with above average academic achievement were more aware of the academic requirements and objectives of their courses.

Entwistle and Entwistle (1970) studied the study habits, personality and academic motivation of a sample of university students and a sample of college of education students. They found the successful student tended to have below average scores on the motivation scales and on the study habits scales. In a similar study at Aberdeen, Entwistle and Wilson (1970) found that their study methods scale distinguished between the worst students and the remainder. Introverts had consistently higher scores on both the motivation and study methods scales. Entwistle et al (1971) indicated a tendency for highly motivated students to be extroverted, while those with good study methods were introverted. They found the comparison between indirect and direct self-ratings showed that the scale of study methods correlated .35 with the self-ratings on hard work. The highest correlation with the self-rating on ambition came from the motivation scale (.23). The scale indicating lack of distractions had the least in common with the other three scales while motivation and study methods had the greatest overlap (.40). To complement findings from correlational analysis, Entwistle and Brennan (1971) used cluster analysis to relate certain characteristics (social class, G.C.E. and 'A' level performance, and various cognitive, affective and other characteristics) to academic achievement. The typologies emerging appeared meaningful and suggested the existence of alternative paths to academic success and failure. Their view, like that of Margrain (1978), is that by using cluster analysis different types of successful or unsuccessful students will emerge and not just one regression equation or one profile.

2.1.2.3 · Study behaviour:

One of the most interesting pieces of work on study behaviour has been that of J.B. Biggs. Biggs (1970) argues that it is unlikely that there is such a thing as 'good' study behaviour and that to apply a 'good-bad' dimension to to characterize study habits is to simplify a complex set of interactions between study strategies and value motivational factors on the one hand and study strategies and task variables on the other. Study behaviour is, to Biggs,

"... the ...

"... the translation in the context of study, of certain enduring personality characteristics, into a series of operations or strategies."

and as such involves complexly determined modes of processing information which are part of the learner's personality. He developed a study behaviour questionnaire which on factor analysis yielded the following factors: Study Organization, Tolerance of Ambiguity, Cognitive Simplicity, Capacity for Intrinsic Motivation, Dogmatism, Independence of Study Behaviour. This study behaviour questionnaire was used in his study of 314 Melbourne University students and it was found that study behaviour interacted with Arts and Science performances. Success in science was closely related to prior attainment in the same content area, whilst attainment in arts was related to two rather different kinds of study strategy: simplifying and self-structuring. It was argued that whereas the science student needs to assimilate familiar categories of information to an already well-established cognitive structure, the arts student is faced with large masses of loosely organized and relatively novel material and has to incorporate it. The arts student needs to derive and impose his own structures on it, which leaves two options available to him; either to adopt the sophisticated strategy of creating his own multidimensional matrix, or to simplify the task by sticking to set texts and rote learning. Both strategies were found to be related to success, but clearly they were used by different students. It was further suggested that those students with a pragmatic orientation to their studies would be expected to comprise the 'simplifiers' while those with more academic ambitions would make up the 'structurers'.

In a later study by Biggs (1970b), the relationship of certain personality characteristics to study strategies was investigated. The six dimensions of study behaviour were correlated with scores on the Maudsley Personality Inventory, the Cooperative Reading Test Form Y, Uses of Objects Test, Meaning of Words Test, a Dogmatism Scale and Performance measures. These yielded the personality characteristics of extreme response set, dogmatism, neuroticism, extraversion and divergence which were correlated with the study strategy scores. Whilst the correlations were low the results supported the hypothesis that study strategies mediate between particular personality variables and the task. Biggs (1972) extended his research to a study of the study behaviour and the matriculation performance of two groups of school pupils. In addition to the study behaviour questionnaire, biographical details and examination results of the pupils were used. The conclusions of the earlier research were confirmed. Of added interest was

the tendency for study behaviour to be related to factors that prevail in the school situation itself, and to the student's home background.

A further extension considered the relationship of study behaviour to performance in objective and essay type tests (Biggs, 1973). Test scores in two undergraduate educational psychology courses were factor analysed and factor scores for performance in general achievement, objective format and essay format, were obtained. It was found that three effects relate unconditionally to performance whatever the format; relating, academic neuroticism and simplifying. Further, high achievement was associated with wide reading and an integrated-relating approach to work, whereas low achievement is associated with feelings of inadequacy and simplifying strategies. The student who is sufficiently achievement orientated, views his university studies as a means to an end and identifies closely with the classroom situation is also likely to achieve well. This confirms Biggs' previous study (1970) on faculty patterns in which he found that high achievement was associated with two different study strategies: integrative or transformational strategies and simplifying or reproductive strategies. The assertion that essay evaluation promotes superior study habits was not supported, Biggs found that superior strategies (relating, wide reading) are associated with the cognitive style variable of convergence. Biggs concludes ...

"While it is gratifying to find that 'academic' students, who read widely and integrate their work, do well, it is less pleasing to discover that opportunistic students, who adopt such unacademic strategies as rote learning and slavish adherence to prescribed course work, also do well."

Other researchers, too, have found that when students from different fields of study have been compared, study strategies differ. Brown and Dubois (1964) compared engineering students with arts students on scales derived from the Minnesota Multiphasic Inventory and found engineering students to be more hardworking and energetic as well as tending towards conformity. The authors suggests that the nature of the task facing the student is a possible reason for group differences in study strategies. Elton and Rose (1966) used discriminant function analysis to compare female first year students who transferred from an arts or science course to other courses. The groups were compared on five personality scales of the Omnibus Personality Inventory and on the American College Test. It was found in this study that arts and science students were least scholarly, least

tolerant ...

tolerant and most socially introverted. In a further study Elton and Rose (1967) found that students in different major fields (Physical Sciences, Social Sciences and Humanities) employed different study techniques. They also found that the study techniques which discriminate between successful and unsuccessful students in different major fields might not discriminate in another.

Like Biggs et al, they argue that the question is essentially one of interaction since it asks if the difference between successful and unsuccessful students is so for different major fields. Goldman and Warren (1973) also used the technique of multivariate analysis of variance to compare the centroids of responses on a study technique questionnaire by students enrolled in four major fields (Physical Sciences, Biological Sciences, Social Sciences and Humanities). They found no relationship between the grade point average and the major field of study which fails to support the findings of Biggs (1970a) and Brown and Dubois (1964) who reported such differences. Another major difference was that Biggs and Brown and Dubois compared only two major fields and not four as in the Goldman study. The differences in result are more likely due, however, to the different statistical techniques used. Biggs used a series of univariate comparisons which tended to magnify the differences between the groups since the dependent variables are more likely to be correlated. This leads to difficulty in interpreting group differences. Goldman et al used a multivariate comparison of group centroids which provides an alpha level that is not increased by the use of multiple dependent variables. Goldman has used this technique in further studies; Goldman and Hudson (1973) and Sexton and Goldman (1975). In the former study Goldman supported Biggs' findings that differences in study strategies are probably due to differences in the 'task structure' of the different subject areas. In the latter study one of the interesting findings suggests that students in different major fields differ significantly in the pattern of preparation but not in the achievement in each subject. In an earlier study Goldman (1972) et al demonstrated a positive relationship between grades in statistics and a 'logical' learning strategy in a group of undergraduates. This strategy was defined as 'trying to learn the underlying reasons for the technique in a verbal way'. The opposite of this, called 'mnemonic concrete strategy' was defined as 'trying to learn the computational technique by observing examples often without worrying about the reasons for the technique'.

Entwistle and Thompson (1974) felt that the questionnaire/psychometric approach on its own failed to explain adequately the relationships and interactions involved in study behaviour. By using interviews it is asserted that the students' own perceptions of the situation within the students' framework of values are considered. (How much the more so in the current context). As part of a study using Entwistle's Aberdeen Academic Motivation Inventory (1968) a group of sixty university students were interviewed by Jennifer Thompson. She used a semi-structured schedule which considered the following motivational factors:

- "(1) Pre-university experience - incidence of pressure or encouragement to enter higher education from home and school; preparation and guidance received; experience of academic success;*
- (2) Experience at university - difficulties in transition; satisfaction with intellectual demands of courses; relevance of courses to students' present interest; effort expended on studying; contact with academic staff; extra-curricular activities; reactions to examinations.*
- (3) Anticipated post university experience; perceived relevance of courses to students' future goals; plans for work; training or further study."*

Entwistle and Thompson (1974).

She found that she could categorize the students' comments into four groups: high achievers, low achievers, over-achievers and under-achievers. The writer asserts that when the interview comments are combined with test scores of personality, motivation and study methods, a more consistent pattern of results emerges.

2.1.2.4 Attitudes towards education:

Although attitudes towards education cannot be divorced from personality, interest, motivation and intelligence in the individual, it is treated separately because of the vast literature on this topic. One of the best known surveys of study habits and attitudes is that of Brown and Holtzman (1955) whose scales (Survey of Study Habits and Attitudes, SSHA) are meant to show that attitudes to study and education can be measured by objective procedures and play a substantial role in subsequent academic achievement. The study attitude sub-scale focusses on academic beliefs and opinions and

contains items enquiring about the students' attitudes towards teachers, teaching methods and various educational objectives and requirements. An overall score, study orientation, represents the sum of scores achieved on the study habits and study attitudes sub-scales. The majority of research in this field supports Brown and Holtzman's findings. Small (1966), Lum (1960), Popham (1960), Knapp (1973), Holmgren (1972) and Elish (1969), all found that the more extreme the attitude the greater its potential effect on achievement.

The congruence of attitudes, and, in particular, belief systems and goal orientation as they related to student achievement, was a development from these studies. Conway and Dettre (1971) found that the 'closed-minded' teachers seemed to identify more to 'closed-minded' students (cf. Labon, 1978). Academic performance differences appeared when the attitudes, belief system and goal agreement variables were considered together. The greatest differences occurred in students who were closed-minded and who were also in low agreement with the goals of the teacher. Similar findings were reported by Smith (1967), Lewis (1970) and Van Dromme and Ruimy (1973). Harvey (1971) found that 'conforming' academic students who identify with the values and goals of the institution possessed better study habits and attitudes than non-conformist students although he could find no significant differences between the students with good and poor study habits and attitudes and four personality dimensions (introversion-extroversion, sensing-intuition, thinking-feeling, judgment-perception) on the Meyers-Briggs Type Indicator.

In a study of the attitudinal and situational correlates of academic achievement in young adolescents, Banreti-Fuchs (1972) found that high achievers showed a more positive attitude to authority and traditional social values, to duty and responsibility especially regarding work habits, and displayed more desirable school behaviours and academic interests than did average and low achievers.

"The high achievers tended to display what might be described as the 'protestant ethic'. They like discipline, prefer to concentrate on their work first, and are quite willing to postpone fun and relaxation for later."

In a later study (1975), Banreti-Fuchs examined similar relationships using first year university students. All students completed an interest,

attitude and personality inventory and their responses were subjected to factor analysis. The main difference in results between the school and university studies reflected, not surprisingly, a diminishing of the importance of the attitudinal influence of the parents, and a greater maturity on the part of university students as reflected in a lack of conformity to authority and traditional social values, and in greater emotional and intellectual independence especially regarding attitudes to work. At the high school level, high achievers preferred to concentrate on their work first and to relax and enjoy themselves only after having finished their work. In the case of university students who face long-term objectives such as term essays as distinct from short-term objectives such as homework assignments in school, and who are freer in deciding how time should be spent, such patterns were not found. Banretl-Fuchs (1978). (cf. Blumberg, 1969).

To many researchers interest is an important aspect of attitude and motivation. A number of studies have used the O.A.I.S. scales (Opinion, Attitude, Interest Scores) as a measure of the prediction of academic success. Sherron (1970) investigated the relationship and differences among personality, demographic and intellectual variables of scholarship recipients to determine their use as predictors and criteria of academic and non-academic achievements. Analysis of variance was used to determine the differences among the various groups. Step-wise regression analysis was used to determine the association among the variables and to select the most efficient predictors of academic and non-academic criteria. Sherron found a significant relationship between high school academic achievements and (a) opinion, attitude and interest scores, (b) high school ranks in class, and (c) scholastic aptitude test scores (S.A.T.). By combining selected O.A.I.S. scale scores with SAT scores he found an increase in the efficiency of predicting the grade point average. These findings were not supported by Graff and Hanson (1970), who examined the relationship between the scales of the O.A.I.S. and college achievement. They found their results offered little support for the use of the O.A.I.S. as a single or supplementary predictor of academic achievement. The only O.A.I.S. scale that was found to correlate significantly with grade point average was the achiever personality scale (motivation).

A commonly used inventory is the Strong Vocation Interest Blank. Morgan (1952) and Rust and Ryan (1954) reported differences between over- and under-achievers on interest patterns, although Hewer (1956) and Burgess

(1956) failed to find any significant differences. Johnson (1969) found the degree of relationship between the interest scales and grades tended to be somewhat greater for marginal students although it was only with more able students that the correlations were significant. Thomas, Morrill and Millar (1970) found that students with high educational interest scores scored higher grade point averages than students with low interest scores. They concluded that educational interest in combination with motivation and ability was more important for persistence in an academic major than concern for achievement alone.

The literature seems to support the contention that there is a positive correlation between motivation and attitudes, in that negative attitude and low motivation go hand in hand and that positive attitude and high motivation go hand in hand. Linear relationships were not found, however, and it follows, therefore that positive attitude scores will not necessarily ensure high motivation scores. Further it suggests that where a student has a positive attitude to his work and especially where there is congruence between the situational values and goals, academic success is more likely.

2.1.2.5 Achievement motivation:

The motivational factor considered in the research into discrepant achievement has been described under various names; achievement motivation, need for achievement and also levels of aspiration. Although motivation as behaviour cannot be divorced from personality and intelligence in the individual it is treated separately here because of the vast amount of research and literature on this topic alone. In the research two aspects of motivation are generally distinguished, the motive itself and the goals sought, because different strategies are associated with them. Results of research into the relationship of motivational factors and achievement are inconsistent and this is probably due to the differences in the tools and methods used on the one hand and the epistemological assumptions underpinning them, on the other.

Two types of measures have been used, the projective technique of which the Thematic Apperception Test (T.A.T.) technique is the most widely used, and the direct questionnaire/interview technique. Atkinson (1964) argues that the indirect (T.A.T.) approach is a more reliable technique because much of motivation may not be open to conscious appraisal and that direct questions about it will not render valid answers. On the other hand, as P.E. Vernon (1963) points out, projective measures fail to meet adequate criteria of reliability mainly because of the high degree of subjectivity in the interpretation of the subjects' responses. (cf. Van der Merwe, 1978; Angus, 1978).

Findings relating achievement motivation to academic success by means of projective techniques are inconsistent. Whereas Burgess (1956), Chahbazi (1958), Weiss et al (1959) and Bridgeman and Shipman (1978) found a positive relationship between the need for achievement and academic performance, others like Mitchell (1961), Parrish et al (1963) and McClelland (1953 and 1961) observed that the achievers and non-achievers did not significantly differ on the need for achievement. The use of sentence completion tests have shown equal inconsistencies as seen in the work of F.S. Irvin (1967 and 1970) and by Ashbaugh et al (1973). Bendig (1958), Krug (1959) and Weiss et al (1959) and others found a positive relationship between the need for achievement and college grades, whilst Red, McCary and Johnson (1962) using Cassell's level of Aspiration Test found an insignificant relationship with achievement.

A major difficulty surrounds the interpretation of the students' responses, especially in a cross-cultural context. In a recent study of Zulu matriculants, Angus (1978) found evidence of achievement motive. Those subjects who obtained high scores on the achievement measures were generally more successful in the matriculation examination than those who obtained low measures. What is of interest in this study, and in that of van der Merwe (1978), was their use of the Thematic Apperception Test with populations for whom the tests are not standardised although they both record high inter-marker correlations. Schludermann and Schludermann (1977) warn, however, that achievement theory primarily represents the individualistic ethno-centric bias of middle class Western societies, and this could perhaps account for the lack of significance found by Angus between high and low achieving groups on items relating to achievement-related attitudes, beliefs and opinions.

The other type of measure which can be used is the questionnaire/inventory type. The Brown and Holtzman Survey of Study Habits and Attitudes Inventory contains goals orientated motivation items (educational acceptance) and these have been found to be significantly related to academic achievement (Anderson, 1961, Cowell et al, 1970, Engelbrecht, 1975). The Rothwell-Miller Interest Blank is another and it has been used with black students in South Africa (cf. Visser, 1978, 1978 and Shannon, 1975). Although still in the developmental stages it has yielded promising results.

Using his own scales Wankowski (1973) showed that students who were progressing normally had clearer goals than those who failed. Jones, Mackintosh and McPherson (1973) believe that such goal-orientated motivation may vary from discipline to discipline. In their research at Edinburgh

University they found that whilst psychologists gave positive reasons for entering university, sociologists tended to give negative responses to vocational reasons and indicated that their choice was the least unattractive of alternatives or involved the postponement of a career choice. They suggest that the effectiveness of goal-orientated motivation is dependent on a confluence of student values and the specific educational objectives of a course or area of study. This would seem crucial in determining the choice of a test battery. (cf. Chapter 6).

From these studies it appears that effective study methods presuppose high levels of motivation, curiosity, persistence and interest in the subject-matter. But it does not follow that the highly motivated student will necessarily find and use the best study methods nor that the study methods of successful students are necessarily the 'best' methods as defined by most study habits questionnaires. This suggests that a more fruitful focus for research would be the complex set of interactions involved in study behaviour.

2.1.2.6 Types of assessment, study behaviour and achievement:

Schonell, Roe and Middleton (1962) have pointed out that when a student begins his university career he has certain study habits which he has developed during his school years, and that many students begin by believing that the study methods and strategies which they have used in secondary school will continue to serve them well. Often, after a short time at university, the student realizes that university requirements differ in many respects from school requirements and modifies his approach accordingly. Some continue to use their established strategies and methods whilst others change their methods gradually without being aware that they have changed them at all. Merkhofer's research (quoted by Bloom, 1963) relates study behaviour to both the nature of the subject matter and to the type of examination which students are required to take. Meyer's study, as long ago as 1935, also concluded that the examination set was of fundamental importance in determining study methods. The work of Biggs and Goldman, reported elsewhere, using more sophisticated measuring instruments and statistical procedures has not only verified this but also explored the complex nature of study behaviour. Hakstian (1971) has reported much of the research conducted into the relationship of the type of the examination to study behaviour.

That examinations influence learning is not disputed but the effect of the format of the test on study behaviour has led to much contradictory research.

Green (1963), for example, believes that multiple-choice examinations promote the use of superior study methods, whilst Adams (1970), on the other hand, believes the opposite that the essay stimulates the use of superior study methods. Others like Gerberich, Greene and Jorgenson (1962) and Ebel (1970) argue that both types of examinations are probably equally effective as motivators. Vallance (1947) found no differences in performance on either objective multiple choice questions or essay questions between students anticipating an essay test and those expecting an objective test. Sax and Collett (1968) found that students who anticipated an objective/multiple choice test achieved higher scores on this type of test than students who expected a recall essay type of test scored on that type of test. Hakstian (1971) compared the effects of anticipation of either an objective essay or combined objective and essay examinations. No reliable differences were found suggesting that the kind of examination expected did not affect the amount or type of preparation or actual performance on either examination type. Biggs (1973) suggests that whilst performance in different test formats is affected by different study behaviour (in particular, strategies), the fact that a student's study behaviour has its roots in the way he functions as a person, which is independent of the type of test format used, could indicate why Hakstian and others found no correlation between objective or essay formats and the students' choice of study behaviours.

Research in this area presents many problems. Firstly, where comments of students are used they are not easy to quantify. Secondly, there are many variables which affect the study methods which students employ in preparing for comprehensive examinations. Although an investigator may seek to control the effects of examinations on the learning of students, he has to bear in mind the nature of the students' previous experiences with examinations, especially the study methods developed at secondary school level. Other factors to be considered are the influences of teachers, the study environment such as home and college circumstances, attitudes and motivation to study, personality and health and the nature of the discipline being studied. The study behaviour of students, is, therefore, more complex than the relatively simple instruments of measurement which are often used in assessment may suggest.

2.1.2.7 Aptitude:

2.1.2.7.1 Background:

The testing of aptitudes was begun by German psychologists in the early 1880's using simple mental processes such as reaction time, association,

memory and similar factors as predictors of achievement. These early studies and those conducted in America in the early 1900's produced only chance relationships, and of little significance, between the predictors and achievement. In France, around 1905, Binet devised a method using individual tests for the selection of children who could not profit from regular classroom instruction. The development of group tests in America during World War One led to the use of general Intelligence as academic predictors. Ross, C. and Stanley, J. (1954) reported a study in 1920 which produced a correlation of 0,49 between Army Alpha Scores and first year college marks. Garrett's (1949) comprehensive review of major studies conducted on the prediction of success in American colleges from about 1921 to 1945 showed that most studies used correlation techniques to find the degree of the relationship between some predictor and evidence of success. The criterion used in most studies was academic performance, either at school or college and the predictive value was judged from the size of the correlation coefficient. From Garrett's review it appears that the best predictor was a combination of average scores on a reliable and valid scholastic aptitude test. As will be considered, more recent studies question the use of aptitude scores alone, or at all, and the dream of 'perfect' predictors developed from the refinement of aptitude and other measures has not yet been realized. (cf. Ghiselli, 1966).

2.1.2.7,2 Aptitude and academic achievement:

Most studies on the relationship of academic aptitude to academic attainment concern the usefulness of aptitude scores in predicting academic achievement, usually for selection purposes, the correlation of academic aptitude together with other non-intellectual factors to academic achievement, and the use of such measures in counselling students especially regarding their major field of study.

The differences in syllabi and standards in American High Schools led to the development of aptitude and proficiency test batteries for the selection and placement of students. What troubled American educators was the effect of competitive pressure for college and university places upon the high school curriculum and examinations. It was felt that, if some useful test could be devised which had minimal influence upon what was taught in schools, then a measure of breadth and flexibility might be restored. The most commonly used batteries are the Scholastic Aptitude Test (S.A.T.), the American Council on Education Psychological Examination for College Freshmen (A.C.E.), the Ohio State University Psychological Examination (O.S.P.E.) and the

Differential Aptitude Test battery (D.A.T.). Similar tests are being developed in Canada. (cf. Traub and Elliott, 1973).

Approximately two million candidates annually sit the two part Scholastic Aptitude Test consisting of two sections (verbal and numerical), both of which are graded on a 200 - 800 mark scale which reflects the distribution of aptitudes in a given population. In a review of research which made use of these batteries, Fishman and Pasanella (1960) found an average correlation of $r = 0,47$ between aptitude scores and attainment.

In using such aptitude measures for selection and placement the Americans have recognised that it is not possible to disregard entirely the student's academic performance at high school. (High School Record, H.S.R.). This record of performance in school subjects is believed to reflect the student's educational background and important motivational variables. The studies reviewed indicate that whilst aptitude test scores make a significant contribution to the selection process, high school record or grade average remains the best single predictor of later academic success. As Fishman and Pasanella (1960) point out, testing by standardized aptitude together with HSR has become an accepted part of the admission/selection process.

Several studies have found a significant relationship between academic aptitude and achievement when scores on aptitude tests were correlated with academic performance. (Kirkpatrick and Gettys (1945), Lanigan (1947), Long and Perry (1947), Milligan et al (1948), Swensen (1957), Herman and Gaelo (1973) and Johnson, D.M. (1973)). Whilst these studies in themselves can assist counsellors in advising students on courses of study the addition of variables does lead to a more meaningful set of data. There is much literature on the relationship of personality variables and academic aptitude to academic achievement. Holland (1959) compared the predictive power of the California Psychological Inventory (C.P.I.) with that of the Scholastic Aptitude Test (S.A.T.). He found that the predictive power of the C.P.I. was more effective than that of the S.A.T. although his findings were probably influenced by his sample which consisted of a highly selected group of high intellectual ability. Stroup (1970) attempted to derive a regression equation to predict achievement from a combination of the scores from the Scholastic Aptitude Test (S.A.T.) and the California Psychological Inventory (C.P.I.). Using step-wise regression, he suggested that the variables which might be used to make up a prediction equation are S.A.T. Verbal and Mathematics tests and C.P.I. Socializing, Femininity and Flexibility tests. He found that each S.A.T. measure was more highly

correlated ...

correlated with achievement, for both sexes, than was any C.P.I. scale.

Other studies have concentrated on the relationship of what is called the high school record (H.S.R.) to academic aptitude to subsequent achievement in higher education. Holland (1960) found that the high school record rank had overall superiority as a predictor of college grades, his other predictor variables being Cattell's 16 PF Questionnaire, Vocational Preference Inventory and the Scholastic Aptitude Tests. The major part of a study by Biggs and Johnson (1972) was concerned with the identification and measurement of self-made academic predictors and the relationship of these predictors to past and future performance (H.S.R.). They found that aptitude was not as significant a predictor (of future performance) as was high school record rank. Similarly, Jones and Grinecks (1970) found a student's concept of his own academic ability a more effective and consistent predictor of academic achievement than academic aptitude. (cf. Green, 1978). In a study which was aimed at predicting student success in elementary algebra, Mogull and Rosengarten (1972) assessed the validity of the Iowa Algebra Aptitude Test and the Differential Aptitude Test in predicting final examination results in high school elementary algebra. Their results indicated that the best single predictor is the previous year's algebra averages and not the aptitude scores. Fudge (1970) on the other hand found that when high school rank scores were combined with S.A.T. scores a better estimate of academic performances is possible than was possible when aptitude test data alone was used. Buff (1972) also found that combinations of predictor variables proved more effective than any single predictor considered. He, too, found that prior achievement scores proved to be the best single predictor of academic achievement in Fortran Language Programming courses. Significant relationships were found between scores on the I.B.M. Aptitude Test for programmer personnel, Otis IQ test and the S.A.T.

Other studies of the relationship of specific aptitude tests (as against general overall aptitude test batteries) to achievement have produced significant results. Fishman and Pasanella (1960) reported that a large number of studies of the relationship between scores in English or reading tests and academic performance at first year level produced median correlations of 0,47; that similar studies in social studies, and natural sciences yielded results with a median correlation of 0,45.

One significant and yet not surprising finding from many of these studies is that the predictive quality of aptitude measures increases over a longer period, that higher correlations are found between aptitude measures and

academic success after the first year. Strong evidence supports this. Mauger and Kolmodin (1975) argued that the usefulness of aptitude scores is not contingent primarily on their ability to predict academic success at first year level, but rather an indication as to how well the student will perform over his entire course. Other studies by Humphreys (1968), Goldman (1971) and Slegelman (1971) have reported less consistent findings. Humphreys compared aptitude scores with student achievement in successive semesters and found a decline in the correlations.

In the majority of studies of the relationship of study habits and other variables and aptitude or achievement, significant differences are found between successful and unsuccessful students although findings on the inter-correlation of the variables to achievement are contradictory. Weinstein and Gipple (1974) studied the relationship of study skills to achievement in the first two years of medical school and found study skills to be more highly related to achievement than academic aptitude scores. This relationship was higher for first year students than for second years. Lin and McKeachie (1970) also found that study habits contributed to academic achievement independently of aptitude, particularly for women. They found that differences in achievement of extreme anxiety groups was largely accounted for by the differences in academic aptitude. Kammann (1963), too, found that study habits were not related to aptitude nor to reading or reading improvement in his study of aptitude, study habits and reading. Kammann found a regression towards the mean between initial and subsequent reading level test scores and the mean in his study of changes in study habits and attitudes following a study skills course which was designed to prepare and assist students in their adjustment to university life. This could, however, represent not necessarily a decline in study habits and attitudes as a result of the course but more probably a more realistic self-report.

As an initial step in the development of a study techniques programme, McCausland and Stewart (1974) examined some of the factors which contributed to college success. They found a positive correlation between academic aptitude, study skills and attitudes, and academic achievement. Results also suggested that females obtained higher marks than males because females were found to study more efficiently and accepted academic standards more willingly. As with previous studies, the high school rank and the American College Test Composite scores combination provided the best predictor of achievement, but they found that the addition of other variables including

study habits and academic attitudes had no appreciable effect on improving the prediction of achievement.

In Britain, the Robbins Report (1963), in considering possible changes in the selection of students for higher education, recommended that:

"There should be research by an independent body into the extent to which aptitude tests might supplement other features of the selection process."

(p.277, para.232).

It was suggested that this aptitude information, a test of verbal and numerical abilities, together with information from head teachers on their estimate of the academic potential of the candidate would provide better predictive information to selection committees. Two studies were carried out; one in Scotland where just on ten thousand pupils from 218 schools were studied, the other in England where the sample included twenty-seven thousand pupils from 619 schools. Both studies set out to investigate the school achievement and aptitude scores of pupils entering different sectors of higher education, and considered the predictive validity of the head teachers' estimates of academic potential and academic aptitude scores. In both studies the American Scholastic Aptitude Test (Verbal and Mathematic), as adapted by Oliver, were used. The English study conducted by the National Foundation for Educational Research (N.F.E.R.) found that university students have much higher aptitude scores on average than students entering other institutions of tertiary education such as colleges of education and polytechnics. It also found differences in aptitude scores and A Level grades of students entering different fields of study in universities and colleges. The rank order mean A Level 'score' was Arts, Social Sciences, Science and Technology which reflects the existence of the greater competition for places in Arts faculties. In terms of the combination of verbal and numerical scores the science pupils appeared to be rather more able, as a group, than their A Level grades might suggest. A similar contrast has been reported by Entwistle, Percy and Nisbett (1971). In the Scottish study, students in the science faculties had higher mean scores in 'Highers' than had any other faculty.

Simple correlations between head teachers' ratings of suitability for university and degree performance were around 0,25 in both studies whereas simple correlations between aptitude scores and degree results in the Scottish sample ranged from between 0,00 and 0,27 with a median value of

0,08. Within subject groupings the separate aptitude tests were higher; mathematics aptitude correlated 0,32 with degree results in mechanical engineering and 0,23 in physics; verbal aptitude correlated 0,26 with degree results in history and 0,21 in English.

In both studies the best prediction of future academic performance came from external examination (school) performance. Correlations of mean A level grade with degree performance varied between 0,19 in arts faculties to 0,42 in engineering with a median value of 0,28. In Scotland higher overall correlations were obtained with a median value of 0,39 from a comparable mean grade. To examine the effect of including aptitude tests, the Scottish researchers used Stepwise Multiple regression to examine whether ...

"Scholastic Aptitude Predictors ... had a certain advantage for inclusion in the regression equations as second or third elements. The fact that they rarely did so is an indication of just how poor they were as predictors."

In the English study the researchers were more concerned to find out how the value of multiple correlations increased when aptitude scores were added to other information. Taking all courses together the combination of school assessment and number of O Level passes, produced a multiple correlation of 0,28 with academic success. Adding both aptitude scores to the analysis boosted the correlation only to 0,30. The same minimal increase was obtained when the aptitude scores were added to the combination of O Level and school assessment measures. The multiple correlation was lifted from 0,40 to 0,42.

Both studies found that first year academic performance correlated highest with degree result. In terms of initial selection procedures these findings can be of little help. Whilst the Scottish findings, in particular, revealed a lack of evidence to support the use of the Scholastic Aptitude Test in selection for university entry, the English report does add that ...

"The relevant key to the validity of the test of academic aptitude is not the measure of its correlation overall with university performance, but rather its ability to identify applicants who are likely to fail ... Cut-off selection methods applied to G.C.E. results are in widespread use by the universities, although there are few figures available to justify the choice of particular thresholds."

In discussing the possible reasons for the failure of the Scholastic Aptitude Test in Britain, Entwistle (1974) argues that in the United States ...

"The level of prediction is highest in colleges heterogeneous in the ability levels of entrance and a good deal lower where colleges are more selective."

He goes on to argue that courses, areas of study and criteria of academic performance differ widely between American and Britain and that ...

"We should ... anticipate good predictive validity only when the aptitude measured is closely similar to the intellectual skills required in that particular subject area."

2.1.3 CONCLUSION:

Differences in research design and sampling would account for some of the differences in emphasis between findings, but similar variables and factors are shown to be operating in almost all the studies. In summarising those which seem most to affect the academic performance it appears that success largely depends on the effort the student is prepared to spend on his studies. The variables influencing such learning consistently appear to be personality factors, study attitudes, interest and motivation. It is the interaction and relationship of these variables with ability which appear to determine performance. As Schonell (1962) concludes:

"The student who has a good measure of persistence, industry, organising ability, thoroughness, who is well adjusted and motivated, is excellently armed to overcome such handicaps as average intelligence, poor home environment or university shortcomings in arrangement of courses, in lecturing or in tutorials. Indeed a personality which will go on grappling with problems and overcoming difficulties is the most priceless asset to any university student. Conversely, the student who appears to possess every advantage of both intelligence and environment may lack personality strengths of these kinds and become a failure in university studies."

Further, that failure and hence wastage does occur at university with students who have achieved successfully at school, seems to indicate that other factors do influence performance at university level. Nonetheless, the inconsistency of the findings is clearly evident. Much of it appears due to the failure and inability of investigators to take into account the complexities involved.

In many of the smaller scale studies, investigators report their inability to 'control all the variables' as well as to account for unexplained statistical variance. In the larger scale studies where multiple variables were subjected to a variety of sophisticated statistical techniques, now facilitated by the versatility of the computer, difficulties still remain because of the rapidly changing setting. Ever increasing statistical sophistication characterizes these larger studies seemingly on the assumption that more rigorous procedures will produce greater predictive validity. Entwistle and Wilson (1977) have suggested this when they remark that the lack of evidence supporting ...

"close relationships with degree results ... may reflect the lack of any coherent strategy in analysis."

In an extensive review of the literature on student characteristics and their predictive potential for academic achievement, Margrain (1978) confirms the contention that the results are often contradictory and on the whole account for little variance beyond that accounted for by tests of intellectual ability. Researchers inevitably use different performance criteria so results are not comparable.

2.1.4 A CONSENSUS PROCEDURE:

A 'consensus procedure' emerges from these studies, however. The problem investigated generally concerns aspects of academic success or failure with the object of predicting or selecting. Variables are investigated and chosen on the basis of previous studies or on the availability of particular test batteries. This is perhaps justified in studies concerned with constructing or validating a battery or set of tests, but is questionable in cases where the batteries and statistical procedures appear to define the research design. Once the raw data has been obtained following the administration of various batteries and on the basis of other evidence, the following procedures are found to be common to most of the studies:

- An intercorrelation of the variables;
- a multiple regression analysis either on the correlation matrix or on a factor matrix if factor analysis had been performed;
- the calculation of regression weights for each variable or factor;
- the calculation of regression scores or factor scores for each individual;
- the determination of the level of the various scores for different groups;
- comparison of factor or score patterns of the groups;
- the determination of the relationship between the factors or scores and the criteria using various statistical analyses.

2.2 THE INITIAL RESEARCH DESIGN:

In any research one is faced with decisions regarding the direction and scope. The problem to be investigated here defied simple diagnosis and solution. The complexity of the situation was such that procedures which did not separate me from the student in action seemed what were needed. Yet, I realised that the *process* of elucidation depended on recognising that the *method* of elucidation had to have credibility so that it be given value by others. This, however, is only given when what is offered is seen to represent what the reader feels is an accurate picture. By opting for certain empirical procedures in parts of the study, I held the conviction that agreement amongst possible readers would be sufficiently established for the consequences of the uses of the instrument of the research to be valued. By adopting a strategy common to similar research elsewhere I felt some confidence in the validity of my decision. This was reinforced by the need, as I saw it, for some device to identify students at risk. On reflection, it is remarkable how much legitimacy is given to particular procedures in this area. (cf. Kerlinger, 1979). Yet the seeming usefulness and attractiveness of a screening device could not be denied when trying to assist newly registered students. Such legitimacy implies a confidence that others will agree with the procedures by which such a device is developed, and recognise the outcome for what it is.

The review of the literature indicated the large number of variables which are said to relate to academic success and failure at school and university. The choice of the variables to be included in this study were limited by the resources at my disposal, the logistic problems faced in organising and executing testing sessions and the suitability of test batteries available

The University of Fort Hare set aside two days each year for testing new entrants but it was impossible to arrange for any additional time to conduct group tests. As I shall explain later much of the other work was undertaken in particular classes or with individual students. Furthermore, I soon realised that unless students perceive any difficulties in their work or can see the relevance of what is being expected of them, they are reluctant to give up their valuable time. My budget was not very large and with expected student numbers of between 300 and 400 per year, the money granted by the university had to be spent on test materials.

A more thorny issue concerned the wisdom of using test batteries not standardized for black students. It is not my intention to enter into the

geneticist/environmentalist arena. A review of cross-cultural research reveals conflicting evidence (Ghumann, 1975 and Poortinga, 1977), but to argue that blacks, like the working class, perform badly in tests of intellectual development either because they are regarded as genetically inferior or because they are seen as having been deprived of opportunities for developing their intellectual potential, is to assume a particular standard or criterion. Both arguments are equally culturally biased as the study by Serpell (1974) indicates. Similarly the work of Keddie (1973), Labov (1969) and Wax and Wax (1971) suggests that the 'cultural deprivation' theory is a myth because it fails to recognise the cultural perspective. Given the very different nature of the blacks' pre-school and early educational experiences compared with those of white children in South Africa, not only should care be taken in assessing the results of psychometric tests, but cognizance taken of Anastasi's (1961) warning that:

"... no existing test is universally applicable or entirely unrestricted in the cultural reference."

A search of the test catalogues of the National Institute of Personnel Research and the Human Sciences Research Council revealed a dearth of test batteries standardized for black university entrants. Only the Academic Aptitude Test (University) recently released (1976) by the Human Sciences Research Council fitted my requirements for a screening device and the criterion of having been standardized for black university students; so this test was purchased. In addition, and in spite of its not having been standardized for black students, but because of the favourable results obtained with it in a variety of different contexts, the Brown and Holtzman Survey of Study Habits and Attitudes was selected for use. Containing, as it does, goal orientated motivation items, items concerned with conformity to conventional standards and items related to organised study methods, it appeared to be suitable to the focus of this study.

2.2.1 PROCEDURES ADOPTED:

Once the tests had been purchased they were administered over two test days to the 1976 first year Intake. Thereafter the statistical procedures outlined in chapters three and six were undertaken. Subsequently the aptitude tests were administered to the 1977 and 1978 intake.

2.3 A RECONSIDERATION OF THE RESEARCH DESIGN:

2.3.1 INTRODUCTION:

Various research designs and methods are possible. The uniqueness of the situation being studied does not 'a priori' justify the case for a particular one or set. It will be seen, therefore, that as the data of the situations was searched certain strategies and methods seemed to be more useful than others, and the problems and issues involved seemed to grow clearer. As this happened the problem began to direct the selection of data and the methods used, but as more was selected my conception of the situation was modified and at times changed, until my enquiries became a search for practical solutions.

One research tradition gave way to another during the course of this study, but it is important to emphasise that this did not mean abandoning one set of research tools for others. This would imply that certain procedures are aligned with one tradition and not with the other. This is not the case. The use of statistical techniques, interview procedures, surveys and case studies are equally applicable within the various research traditions and should be used by the researcher to meet his ends and not to determine them. Nevertheless, the hypothetico-deductive methods which are particularly widespread in research on prediction, as the review indicates, have become especially linked to the nomothetic research tradition. The majority of the large-scale studies reviewed have used a wide range of variables on which various statistical techniques have been applied in attempts to predict the characteristics of successful or unsuccessful students. These have resulted in varying levels of success from Nisbet and Entwistle (1969), who obtained multiple correlations as high as 0,80 between secondary school attainment and a battery of intellectual and non-intellectual variables, to Parkyn (1967) and Drever (1963), who have suggested that many of the factors influencing performance are 'not merely indeterminate, but indeterminable'. Recently Entwistle and Wilson (1977) have suggested:

"Hypotheses clarify thinking, but also narrow the perspective and, where complex inter-relationships are anticipated, any artificial restriction of view may be damaging. Furthermore, there is a real worry that human behaviour may not, after all, be susceptible to mechanistic explanations."

But where fundamental differences between the research traditions do exist, however, concerns not the methods used, but the epistemological assumptions underpinning them.

As I have already indicated, the initial conception of my study of first year students' experiences of academic life at the University of Fort Hare was based within a well-established empirical research tradition. It reflects what Suppe (1974) calls "The Received View"⁽²⁾ of science in which the data of observation is 'hard', particular and epistemologically fundamental. Whilst I originally dismissed the suggestion that the conception was deterministic, I was subscribing in the initial phases of the research to a particular conception of objectivity. The very language in which the hypotheses to be tested are phrased would suggest this, especially in the way it implied my 'detachedness' as the researcher. Implicit was a commitment to a procedural criterion which has its home in a context of scientific enquiry aimed at developing reliable and predictive generalizations. It is beyond the scope of this study to consider the historical development of this tradition apart from stating that its roots go back into the late nineteenth century. Its significance, however, grew out of the coming together of Mach's logico-historical criticism and empiricist epistemology with Russell's symbolic logic and Einstein's relativistic physics in Vienna after the First World War.⁽³⁾ More relevant is the influence on current educational thinking and research design of the logical empiricist tradition and its heir, the behavioural school, which is most committed to the philosophy of 'The Received View' of science.

As long ago as 1894 the German philosopher of social science, Wilhelm Windelband, introduced a distinction between approaches in psychology. Those he termed 'Nomothetic' approaches are concerned with establishing laws based on models of the *Naturwissenschaften*, so approximating the current methods of the natural sciences. 'Ideographic' approaches on the other hand are those concerned with the intensive study of individuals based on the model of the *Geisteswissenschaften* or hermeneutic sciences, and approximate the methods of the interpretative sciences like history.

Quine (1968) has argued that with the advent of linguistic idealism, the qualitative fact/value distinction between the natural and human sciences has disappeared. Facts are no longer seen as being in the world, but part of one's description of the world. Hence, as one's descriptions change, so too do one's facts, the truth being attached to a time designator and reality disappearing 'behind the veil of language'. Hence, the language one chooses or uses is not only descriptive (what is), but also prescriptive (what one should do).

The relative merits and demerits of the two traditions have been debated for many years, both within the human and natural sciences. (cf. Taylor, 1978, Marx, 1963 or Von Wright, 1971). The outcome has often been a stalemate with the 'defeated' alternative often rising again later and attracting further adherents. The fundamental difference between the views is concerned with the nature of generalization, the nature of explanation and the nature of social science itself. The distinction is a useful one, however, and serves to illuminate the conceptual problems I have experienced with my research.

2.3.2 A BRIEF CONSIDERATION OF THE EPISTEMOLOGICAL ASSUMPTIONS OF EACH TRADITION:

2.3.2.1 Within the Nomothetic tradition:

Although many different approaches exist within this tradition I wish to consider two fundamental tenets:

The first is the conviction that all 'knowledge' or all that is to count as knowledge is capable of being expressed in terms which refer in an immediate way to some reality, or aspect of reality, that can be apprehended through the senses.

The second is a faith that the methods and logical structure of science as epitomized in classical physics can be applied to the study of social phenomena.

Ayer (1959) has asserted that:

"... any meaningful statement that is not a tautology should either be capable, at least in principle, of being tested experimentally, or should be capable of being translated into statements which are themselves capable, at least in principle, of being tested experimentally."

Hence the belief that the 'acceptable' method of science is a process of induction starting from simple observation and gradually building up more general statements.

Physicists no longer set out, as Newton once did, to discover islands of truth in a vast sea of ignorance. They now concede that *truth* is no more than contingent (cf. Putman, 1978), but underlying this view, nonetheless, is the assumption that an objective world does exist to be explored. In the human sciences, in psychology, for example, one would begin from reports of simple facts and only later arrive, through induction from these simple observable facts, at more general statements. These observations, therefore,

which ...

which are made about externally 'visible' characteristics of conduct, are necessarily 'pre-theoretical', since it is out of them that theories arise. Moreover, such observations are believed to have no connection with the ideas the researcher has about his own actions and those of others, i.e. they are not subjective.

Within this research tradition it is essential for the researcher to make every possible effort to separate himself from any common-sense subjective notions because these frequently have no basis in fact. Accordingly, the 'data' of experience force upon the researcher definite ideas of description and classification of the world of 'outer reality'. This is evident in the studies reviewed and in more general texts on behavioural research. (cf. Kerlinger, 1979).

The implications of this are very important for it reflects the following fundamental tenets of logical empiricism:

- that it is feasible and necessary to search for some ultimate source of knowledge which is certain, and
- that this source has to be located in some area of sensory experience which can be described or categorized in a language which is theoretically neutral ...

2.3.2.2 Within the Idiographic tradition:

As with the nomothetic tradition, a variety of approaches⁽⁴⁾ can be found among scholars working within the idiographic tradition of the hermeneutic sciences. (cf. the work of Husserl, Sartre, Merleau-Ponty and Heidegger). Nevertheless, the following tenets are generally agreed upon:

- a belief in the primacy of subjective consciousness;
- an understanding of consciousness as active, and as meaning-bestowing;
- that there are certain essential structures to consciousness of which we can gain direct knowledge by an interpretive reflection.

Scholars working within this tradition have sought a critique of natural science by arguing that its claims to knowledge are secondary to and dependent upon ontological premises. The views about the primacy of subjective consciousness are based on a claim that 'consciousness of the world' involves and depends upon 'consciousness of self'. Reality impinges upon consciousness in the constituting of the world, resisting subjective and random ascription of meaning. 'Constituting the world' is an act of giving and taking meaning. Hence, if one is trying to help a student to know about the world, we do so by helping him to come

to know about his own consciousness of the world (to reflect upon his own *Lebenswelt*).

As Merleau-Ponty (1962) has suggested:

"All my knowledge of the world, even my scientific knowledge, is gained from my own particular point of view, or from some experience of the world without which the symbols of science would be meaningless. The whole universe of science is built upon the world as directly experienced, and if we want to subject science itself to rigorous scrutiny and arrive at a precise assessment of its meaning and scope, we must begin by reawakening the basic experience of the world of which science is the second-order expression. Science has not and never will have, by its nature, the same significance qua form of being as the world we perceive, for the simple reasons that it is a rationale or explanation of that world."

To recognise that consciousness is active and meaning-bestowing is to recognise further that being conscious of seeing something is a matter of making sense of seeing it for oneself, even if sometimes we can do so in seeing it only as something strange. (cf. Wittgenstein (1953) on 'seeing' and 'seeing as'). Finally, to claim that consciousness has an essential structure is to claim that in making sense of things it is structured in essential ways.

The hypothetico-deductive methods of the nomothetic tradition have come to be regarded, all too frequently, as a standard methodology which determines the research design itself. The Idiographic tradition is not a standard methodological package although there are methodological steps which are to be followed. The researcher accepts as given the complex scene he encounters and takes this totality as his data base. No attempt is made to manipulate, control or eliminate 'variables'. His approach is essentially 'holistic' in which any particular situational manifestation of the phenomena will embody forms characteristic of the situation itself. As such this form of research clearly dissociates itself from the *a priori* reductionism inherent in the logical empiricist tradition. The positivistic *man as object* which behavioural psychology has taken over from the 'Received View' of science, is one in which man is reduced to an object, to a being of consciousness with 'psychic functions' which can be measured as rigidly defined 'things' or characteristics. Such reductionism is rejected within the idiographic tradition. By 'standardising' the interpretation the social scientist working

within the nomothetic tradition may have destroyed or lost some of the most valuable data he had. Bruyn (1966) suggests:

*"The traditional empiricist considers himself (as a scientist) to be the primary source of knowledge, and trusts his own senses and logic more than he would trust that of his subjects. The participant observer, on the other hand, considers the interpretations of his subjects to have first importance ...
... By taking the role of his subjects he re-creates in his own imagination and experience the thoughts and feelings which are in the minds of those he studies."*

I am not concerned with deciding the ultimate primacy of one of these positions. Rather, I am concerned with justifying the need for an alternative perspective from which to critique the problem under consideration, viz, that of interpreting the high first year failure rate at the University of Fort Hare.

2.3.2.3 A consideration of these positions:

When viewed from within the nomothetic tradition there exists a fear of not being objective in one's work, of not demonstrating that in some way what one is offering is clear of one's own personal prejudices. This, I suggest, is particularly true when one is researching, as I am, in the unstable political arena of Fort Hare. I wish to suggest two reasons for this fear. One is that scientific research sets some store by the criterion of replicability; that is, if someone else sets out to do the same thing then he should find the same results. The second reason is that where the results are connected with a justification for action, then a so-called 'objective' statement seems to offer protection to an opinion. Both these reasons are to be found in the field of the human sciences rather than in the natural sciences.⁽⁵⁾

A second kind of 'need for objectivity' is found in areas of uncertainty, for example, when we talk of an objective evaluation. This is a particular meaning of 'objective', to do with the independence of the observer.

A very different aspect of the fear of not being objective is the worry that one's findings could be said not to be generalisable, i.e. applicable to situations sufficiently like the ones in which one is conducting the research for one to expect that they ought to apply. This can result in experimental work being so hedged with conditions based on a particular research method that it prevents one from reporting in any but highly esoteric terms, terms which set barriers between the researcher and the researched.

A central feature of research within the nomothetic tradition is the implied conception of knowledge. Knowledge is viewed as 'content' and what is learned is conceived as 'information'. It may be decomposed into 'bits' and 'chunks' and may be thought to 'represent' reality. This atomistic, associationistic view of knowledge is entirely 'objective', explicit and readily communicable and, in turn, is confirmed by the hypothetico-deductive research procedures used. Yet other interpretations suggest otherwise. (cf. Polanyi, Popper, Toulmin). Knowledge is not such hard-copy stuff. Rather, they argue, it inheres in action, is only transiently sensed in action in the running through or flow of familiar activities. It is much more elusive than the objective view allows. More specifically, Toulmin (1972) argues that the nomothetic/objectivist tradition reduces ways in which knowledge can be tested by experience to one sort only; that of matching particular propositions against empirical facts. He argues that much more is involved than mere empirical facts: concepts, values, beliefs and theories.

Kuhn (1970) and Popper (1963) also reject the picture implied by the logical empiricists of science approaching absolute truth. Kuhn argues that the revolutions which overthrow existing paradigms and establish new ones necessitate the re-evaluation of prior facts. Thus

"sentences of science are only meaningful assertions within particular paradigms and not universally meaningful simply by appeal to experience."

He argues that the ruling paradigm is 'legislative' - it lays down what is to count as knowledge, 'it bounds rationality'. Feyerabend (1970) suggests that one reason why there is common agreement amongst scientists is because they have been effectively indoctrinated and their imaginations suppressed by the rigidity of science. He likens this 'monopolistic control of knowledge' to the authoritarian nature of a totalitarian government.

But insofar as my initial conception is concerned, with its commitment to procedural criteria, John Elliott's view, that the positivist-objective approach prevents one from making sense of particular interactive situations, is particularly pertinent. He calls for different principles and conceptions which will ...

"orientate the practitioner to practically relevant features of particular situations."

Anthony Giddens (1976), in referring to the findings of Evans-Pritchard whilst working with the Zande tribe, argues that ...

"the assessment of rival theories of disease within the term of Western science is not and cannot itself be rationally justified in terms of those criteria that define the rationality of scientific method as such."

Polanyi takes this fundamental issue further. He argues that positivists have often insisted that theories are acceptable not for their conformity to some elusive and mysterious reality, but simply for their fruitfulness, i.e. for the empirically observable consequences which may follow from them.

"To think," he continues, "a theory is supposed to be nothing but a device for drawing out further observations, is absurd, since no one can equate a theory stated now with its non-existent future results."

He believes what its discoverer judges it by is the confidence he feels in its truth, that is:

... "his confidence that he has made contact with a significant aspect of reality and that therefore out of his explanation many unforeseen consequences may flow."

As he says,

"An entity is the more real, the more unforeseeable consequences could flow from it."

As soon as I entered into the interactive situation with the students when they began to relate their perceptions and difficulties I was faced with the need to undertake an 'Interpretive enquiry'.

2.3.3 INTERPRETING:

It is not my purpose to enter into a philosophical disquisition on the idiographic traditions. It is simply necessary to state that the emphasis on the centrality of interpretation in the human sciences has been developing for many years. By accepting the possibilities offered in the idiographic principle of interpreting as central in the way one tackles a research enquiry and the underlying epistemological assumptions, I am in a better position to study the interactive situation. In using test and scheduled questionnaire procedures one operates at a 'pre-active' level and the responses obtained and particularly the students' descriptions of how they work and what difficulties they have to cope with is not all they do nor how

they ...

they cope in the interactive situation. This is not to dismiss the usefulness of the data collected in that way, but to recognise it for what it is. What this data excludes is a consideration of social reality as characterized by intersubjective and common meanings because it consists of what Taylor (1978) calls 'brute data' alone as identified supposedly beyond interpretation.

But more important is that this approach does imply quite different notions from the Platonic, deterministic notions of what is meant by knowing and how we are to know, both in descriptive and operational terms. (For a full analysis of this see: Popper, 1963, Hamlyn, 1978, Wittgenstein, 1958, Grene, 1966 and Polanyi, 1973). The 'dream of a manifest truth' has a very long history but it is to Polanyi's distinction between two kinds of awareness, focal and subsidiary, that I shall return in a later chapter when I consider how students study.

The advantage of changing the emphasis is that the possibility of generalising about any findings is dependent on their interpretation by others,⁽⁶⁾ and not only on the method by which they have been achieved. Rogers says that

"the disease of the behavioural sciences is that they have thought objective testing to be primary in importance; that is they have thought the method to be the primary thing." (1968)

This not only points to Rogers' concern over the "*dehumanizing of the behavioural sciences*" (Rogers, 1955), but also to what Andreski (1974) calls the "*self-fulfilling prophecy*". He states:

"... apparently pure methodological conceptions can mould the reality."

Every description of human behaviour ...

"becomes to some extent a persuasive definition as soon as its objects get to know of it."

So, as soon as men "*enter into conversations*" with observers who are attempting to establish what the patterns of behaviour are, they tend to become what they are alleged to be. The problems which are likely to arise when one takes ordinary words and transforms them into theory words⁽⁷⁾ cannot be avoided either. The fact that our language contains descriptive terms does not necessarily mean that these terms refer to distinctive psychological or physiological processes, however. To assume they do is to fall prey to the nominalistic fallacy: the assumption that because a noun form of a word exists, it must have a referent.

The self-reflective consciousness of interpreting one's own acts, central to the enquirer's activity within the idiographic tradition, assists one to avoid the problems suggested. The danger is that of the well formulated explanation being mistaken for a way of explaining which is automatically accessible to all.

It would seem, therefore, that the two positions are based on entirely different premises and assumptions regarding the foundations of knowledge. The empiricist finds difficulty in explaining the nature of theoretical categories which do not stand in any discernible relations with sense-data. The phenomenologist, on the other hand, having located the foundations of knowledge in ideal categories, finds difficulty with reconstituting the world of sensory experience itself. (cf. Giddens, 1976).

2.4 A PROPOSAL:

To sum up, empirical research in the tradition in which this study was initially conceived can be carried out where there is an initial conviction that agreement amongst possible readers is sufficiently established for the consequences of the uses of the instruments of the research to be valued. Where there is no such initial conviction or where that conviction is doubted, then one has to move with care into the 'unstable' area of interpretive enquiry. The move then is towards the process. Hence, I have shifted from one research tradition to another for the following fundamental reasons:

Firstly, reductive enquiry is only possible when there is a belief in the corporate acceptance of the validity of the reduction. The acceptance was made in respect of the aptitude measures.

Secondly, where the agreement is questioned or becomes a problem and is realised to be unstable there is no option but to consider the probity of the idiographic stance. This was the case in respect of study behaviour.

Thirdly, once it is accepted that one is working in a context of rapid change and of differential rates of change and that one cannot produce 'stable' data, then methods must change. In effect,

*"the non-symmetrical subject-object relationship is abandoned
in favour of a principally symmetrical subject-subject relationship."*

Bauersfield (1977).

These reasons are not dissimilar to those put forward by Nash (1973). To understand what was going on he had to enter into an idiographic relationship

with ...

with his 'subjects'. As he explains:

"... the traditional empiricist methodology of the social sciences may show that so and so appears to be the case, but does not show why it is."

The important feature of the idiographic stance is that the approach increases the significance given to the act of interpreting in connection with one's actions. It puts the onus firmly where it belongs and that is on the people who are experiencing, asking questions, formulating hypotheses, making decisions. It attempts to capture the complexity of the situation, to preserve the uncertainty and/or ambiguity, and to avoid simplification or reduction. In doing so one alters the way in which what is done is accepted as meaningful by others. By setting aside certain categories that are taken as preordinate and significant *a priori*, I am arguing that it is not the observation categories themselves that confer their legitimacy or authority, but the assumptions, conceptions and complex interactions that lie behind the chosen categories which should confer the authority. This accords with the 'illuminative' (Hamilton, 1972), 'ecological' (Parlett, 1969), 'naturalistic' (Macdonald, 1970) or anthropological or ethnographic research styles that attempt to produce *'Verstehen'* (empathic understanding) of a group or culture and which has become increasingly popular over the past decade. As Delamont and Hamilton (1976) have indicated, the illuminative or anthropological perspective is a process of extending insight into the context and the form of an educational programme. Its focus is more upon insight than upon 'reliable' knowledge, more upon the whole than on fragmented aspects; it highlights the interactive and reconstructive role of the researcher, and tends to be especially attentive to the particularities of the context in which the action is taking place. By its very nature, then, the approach involves a 'conceptual evolution' (Toulmin) and cannot depend on standard methodological procedures. Once I began to question the assumptions underlying the use of the Brown and Holtzman Survey of Study Habits and Attitudes and the meaning of the data obtained, I was already involved in a 'conceptual evolution', seeking a resolution to the problem.

In a pertinent paper by Wilson (1977) the case for the use of ethnographic techniques in educational research is lucidly argued. The need is stressed for the researcher to develop a characterization of the situation being studied in terms of the language and perspectives of the participants in that situation. At the same time, it is argued, the researcher needs to

be ...

be detached, to see the situation in terms of its difference to his reactions to it by understanding how it relates to his own preferred ways of thinking. Being aware of this is crucial for it is in the area of this reaction that the researcher can allow ...

"... substantive concepts and hypotheses to emerge ... on their own ... (so enabling the researcher) ... to ascertain which, if any, existing formal theory may help him generate his substantive theories ..."

Glaser and Strauss (1967).

There are difficulties and problems associated with this style of research. I have already suggested that there is a fear of not being 'objective' and of not providing generalizable findings. I have countered this by arguing that the 'Received View' of science which this implies has been long under attack by philosophers of science whose views of reality are one of process, flux and uncertainty yet not meaninglessness. Moreover, as Glaser and Strauss (1976) point out, by concentrating on the reaction the researcher is likely to be more 'objective' and less theoretically biased. (cf. Powers and Bohannon, 1974). The tendency when entering a new situation, be it when observing in a classroom or when listening to an interviewee, to assimilate the situation too quickly and naturally to the schemata by which one understands the world, has to be guarded against. It is a familiar phenomenon, however, one observed in a variety of settings. (cf. Simone Weil, 1952). The rapidity with which one forms views on what we hear or observe, the speed with which we make the unfamiliar familiar, the rapidity of 'closure', can lead to distortion of reality. The alternative is not a haphazard set of procedures, however. But it is important to stress, as Wilson (1977) does, that no one enters a situation as 'a true tabula rasa'.

"The researcher constantly tests his emerging hypotheses against the reality he is observing daily."

Wilson et al (1977).

I shall outline in the sections dealing with the interviews and observations how I endeavoured to avoid too rapid a 'closure' by searching for 'negative evidence' (cf. Becker, 1961) or counter evidence. Furthermore, whilst I was interested in answering certain questions and getting access to that information, my concern was also to preserve uncertainty and ambiguity, to avoid simplification and so immerse myself in the 'multiple reality' of the various situations. As the 'data' of the situations was searched certain

theories ...

theories seemed to make better sense than others and the problems or issues involved seemed to grow clearer. As this happened 'the problem' began to direct the selection of data, but as more was selected I experienced the need to change or modify my conception of the situation, and so on, until my enquiries gradually became a search for practical solutions. Statistical evidence, where relevant, will serve to provide further clarity. The results of the aptitude tests focus on the aptitude test battery and the test performance itself, but this is one step removed from the experience and the learning situation itself. No theories, structures or rigid research procedures could have been relevant at the start or selected in advance of the problem or the search for data because of the constant interaction between the data and the theory. By approaching the problem in this open-ended, context-sensitive way, probing deeper into the relationships and interactions, greater illumination and insight occurred. This stance acknowledges the contingent difficulties in making 'objective' interpretations of complex social situations.

What I have endeavoured to do is outlined with great clarity by Natanson (1962). He states:

'When I suspend or place in abeyance my common sense belief in reality, I merely decide to make no use of the thesis which ordinarily guides our total cognitive and conative life. ... (This) consists in making explicit to consciousness the thesis which unconsciously underlies every individual judgement made within ordinary life about reality ... the natural standpoint most certainly does not include or signify a denial of the reality of the external world or the validity of our ordinary experience within it. Rather ... I place in phenomenological doubt (which is not psychological doubt) my traditional commonsense, taking for granted the very reality of the world within which things are noted or appraised. Suspension, then, involves a shift in modes of attention. The same reality I took for granted in typical fashion in naive attitude I now re-view in phenomenological attitude.'

In so doing one imposes certain checks and balances against irrational beliefs and subjectivity, assuming, however, that there is the possibility of greater objectivity. This involves setting one's own interpretations in the context of a network of interpretations, of imposing the same checks and balances on one's own interpretations as one does on other people's.

Although ...

Although a number of the studies reviewed recognised the need for interviews and other techniques to illuminate the values and attitudes of students, the importance of such activities were seen as serving to provide psychometric scores or results with a subjectively perceived reality. The nomothetic assumptions on which they were based were not questioned, however.

The change of focus in this study to the student in action also opened up the vast literature on classroom research. It is beyond the present study to review this but relevant studies will be referred to in the text. ^{SIMON and} Boyer (1970 and 1968) outlines seventy-nine different interaction systems for use in classroom research. The influence of Ned Flanders (1970) is found in most and all reflect the behavioural core-assumptions of the nomothetic tradition. Delamont and Hamilton (1976), in a critical review of studies using interaction techniques, dismiss the claims to objectivity and reliability and the commitment to surveying large numbers of classrooms in the interests of generalization. Apart from more general anthropological studies of classrooms or learning situations (cf. Becker, 1968, Jackson, 1968, Snyder, 1971, Walker, 1972, etc.) I found no South African studies of black students in this tradition and so this study is breaking new ground.

FOOTNOTES

- (1) Although considerable research evidence is available and was considered on the relationship between various personality variables and academic achievement, no details are included in this study. My reasons are as follows:
- (i) A suitable standardised personality inventory was not available, so rendering any evidence in this connection irrelevant to the study.
 - (ii) The focus of the study was on the study behaviour of first year students at Fort Hare and not on their personality characteristics.
 - (iii) A cognitive measure designed to identify students at risk was being sought.
- The literature review, therefore, concerns itself with those variables which were expected to be relevant in the study.
- (2) This 'Received View' of science has long been under attack from modern philosophers of science whose view of reality is one of process, flux and uncertainty yet not meaninglessness.
- (3) Kemmis, S. (1976) presents a detailed outline of this development.
- (4) It is important to remember that the idiographic tradition is a considerably diversified one. Three major traditions are discernible:
- (i) the hermeneutic
 - (ii) the phenomenological
 - (iii) that relating to the work of Austin and the later Wittgenstein.
- All are concerned with the problems of language and meaning in relation to the 'interpretative understanding' of human action.
- (5) It would seem, however, that we do not hesitate to use 'repeatable' when referring to results in natural science. The coining of the term 'replicable' is intriguing. It is a word with nearly the same sound as 'repeatable' and possibly with appropriately similar etymological roots. Yet its very use casts doubts on the 'repeatable' nature of the experiment, otherwise why use it? In other words, conditions for 'replicability' are announced when it is clear that the work cannot be 'repeated'. It assists us to be convinced. It satisfies the ideal of verification which is central to logical positivism.

- (6) 'Objectivity' is achieved through what Toulmin calls the 'coincidence of interpreting' or in what Polanyi calls the 'mediating of frames', or the achieving of 'conviviality'.
- (7) I can think of many, but none which have evoked greater ambiguities more recently than Bennett's appropriation of 'formal', 'informal' and 'mixed' to his technical analysis of teaching styles. (See Brookes' paper, Standards in Mathematics Teaching, 1978).

CHAPTER THREEA STUDY OF THE ACADEMIC APTITUDE TEST (UNIVERSITY)

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CHAPTER THREE

A STUDY OF THE ACADEMIC APTITUDE TEST (UNIVERSITY)

3.1 INTRODUCTION:

In Chapter two mention was made of the widespread use made of scholastic aptitude test batteries for university selection by universities in the United States. The purpose of their use, and in particular the Scholastic Aptitude Test (S.A.T.) was to identify those persons who, regardless of the subjects they might have studied in secondary school, possess the general academic skills necessary for successful university or college work. The inconsistencies in the quality of schooling, in the South African senior certificate (matriculation) examination and the impossibility of equating 'standards' or levels of achievement in different school subjects (cf. Malherbe, 1977), provided the incentive to develop an 'independent' measure for selection purposes. Whilst the Human Sciences Research Council's primary objective was to develop a battery which could ...

"... serve as an objective, reliable and valid aid ... (for the) ... guidance of pupils in respect of subject and course study choice ...",

the battery was also seen as providing an indication of the potentials of first year university students. As such it can be seen as a possible screening device.

As with all South African universities, the achievement of a matriculation pass, or its equivalent, entitles a student to apply for a university place. At Fort Hare, students who apply for places in the Faculty of Science are selected using the Swedish Rating System. The system is based on the candidate's matriculation results and calculates the candidate's score as follows.

The scoring system uses:

- a. the mathematics symbol
- b. the science symbol
- c. the higher language symbol
- d. the aggregate symbol

and ...

and for each of these symbols, the following points are allocated:

A = 8 points	E = 4 points
B = 7 points	F = 3 points
C = 6 points	G = 2 points
D = 5 points	H = 1 point.

The candidate's total points are calculated by adding:

- a. Mathematics points multiplied by 2
- b. Science points multiplied by 1.5
- c. Higher language points
- d. Aggregate points.

The selection cut-off score depends on the number of places available although the purpose is to obtain a group of students whose average chances of success are higher than a minimum acceptable level. The value of using the Swedish Rating System (or any selection procedure for that matter) depends upon the meaningfulness of the criteria by which achievement is judged; in the Fort Hare students' case, the National Senior Certificate or the Joint Matriculation Board Examination. The selection of students who have performed best in their examinations, because these may be different and have different questions and standards, needs questioning. For example, are the results used in this selection a reflection of an ability to memorize and reproduce facts or an ability to evaluate information, use information in a new situation and think creatively, or both? Is an 'A' grade awarded by the Joint Matriculation Board of comparable standard to that awarded by the National Senior Certificate Board? The assumption is that examinations establish desirable levels of achievement and allocate individuals to positions for which that achievement is necessary, but the inference to be drawn from this is that examinations should be reformed so that they more effectively perform the task of forecasting future achievement.

Professor E.G. Malherbe (1977) has pointed to the fluctuations and range of variations in the marks of individual subjects, and in the low reliability and validity of these examinations. He states:

"If one looks at the extent of these variations among the average marks obtained by large groups of candidates in a particular subject, one cannot help wondering what the vicissitudes of chance were that determined the marks of each individual candidate comprising the group."

He argues that given these criteria, which cannot be meaningfully compared, some common reference criterion for university entrance should be developed. Certainly, the failure rate at first year level seems to indicate that students' matriculation results are poor indicators of academic success (cf. Erens Report, 1978). The call for uniform criteria measures for selection is, of course, not new. Fishman (1958) reporting American work on this adds his own corollary:

"Selection for what?"

He argues that academic prowess is not the only goal being worked for and that there are three levels of criteria; those considered desirable by the institution, those considered desirable by the student and those considered desirable by the larger society of which both the institution and the student are members, and that these make uniform criteria measures questionable.

In Britain four major devices are used, singly or in combination, to select students and by inference to reduce wastage and failure:

1. High school performance at A level
2. The Headmaster's recommendation
3. Personal interview to assess the candidate's overall suitability for the institution and the courses it provides
4. Special examinations or aptitude tests.

The selective and predictive validity of all these has been shown to be inadequate.⁽¹⁾ Further, the Committee of Vice Chancellors' and Principals' research projects into the use of aptitude tests in higher education, standard predictors in North American universities, have failed to provide the levels or correlation found in the American studies (cf. Choppin and Orr, 1976). Moreover, it can be inferred that achievement at one level is not sufficiently related to achievement later and that present school leaving examinations are ill-suited to the task of providing a foundation for subsequent education. Furthermore, in any situation involving the selection for a course, there is always the difficulty of judging whether the 'rejects' would have succeeded if they had been admitted and given the same opportunities as the 'admits'. The problem is exacerbated if the 'admit' criterion is raised without altering the 'pass' criterion. In such a case the number of 'admit-fail' students would be reduced as would the number of 'admit-success' students. It would appear that the nature of the decision where to place the cut-off line is not usually based on educational criteria. Set the cut-off line too high, and some available talent is lost. Similarly, set it too low and the level of wastage increases.⁽²⁾

Given the unreliability of matriculation marks and that standards differ between examination boards and examiners, and following the well-established practice in the United States of America where scholastic aptitude tests have long been in use for selection purposes, part of this study will be to consider the effectiveness of the currently used Swedish Rating Scale as compared with the Academic Aptitude Test, separately and together, for selecting first year science faculty students. It will be of interest, too, to see whether or not the poor results found in Britain occur here.

3.2 PURPOSES OF THIS STUDY:

The purpose of this aspect of the study was to establish whether or not the Academic Aptitude Test (University) can:

- (i) serve as an objective, valid and reliable aid in course selection,
- (ii) serve as a means of identifying students 'at risk'.

To this end the following procedures were adopted:

- (i) In 1976, 1977 and 1978 all first year men and women students who had arrived at the university by the first week of term were tested on the various tests comprising the battery.
- (ii) A factor analysis of the results was performed in order to assess the dimensions being tested in the battery and, more especially, to assess whether these represented distinct vocational/academic orientations.
- (iii) A prediction study was undertaken to assess the power of the battery as a predictor of academic success. Through the procedures adopted, a discriminant function analysis, it was also possible to provide further evidence regarding the course guidance effectiveness of the battery. In addition, the effectiveness of matriculation results as a predictor of academic success was also assessed to provide a comparison with the aptitude measures.

3.3 CHARACTERISTICS OF THE TESTS:

The Academic Aptitude Test (University) was developed by the Human Sciences Research Council between 1968 and 1975. The preliminary manual accompanying the test materials was released during January 1976. The test battery comprises ten tests, the results of a combination of which are believed to provide an indication of a testee's

- a. General intellectual ability (Intelligence)
- b. Verbal ability and reading comprehension in English and Afrikaans
- c. Mathematical ability and
- d. Spatial ability.

The battery of ten tests takes six and a half hours to complete although the instructions governing the administration state that the testing should take place over two days. The first of the ten tests comprises thirty-one items, the rest comprising thirty items. The items are all of the multiple choice type and the testee is required to choose the correct answer from five possibilities. Each test has a time limit and they were administered according to the instructions in the manual.

The following description of the individual tests appears in the manual.

3.3.1 NON-VERBAL REASONING:

This test measures the ability to reason inductively and consists of two parts, viz. Figure Series and Pattern Completion. In the Figure Series items, four figures are given and the fifth figure in the series must then be selected from the given possibilities. In the Pattern Completion items, a total picture must be formed of the matrix, a rule deduced and the matrix completed accordingly. The testee is consequently expected to deduce and apply a general principle.

This test should, in conjunction with the verbal score, provide a good indication of the testee's general intellectual ability.

3.3.2 VERBAL REASONING:

In this test the testees are required to grasp verbal concepts and their relationships. Inductive as well as deductive reasoning is required. The items include analogies, letter codes and logical deductions.

3.3.3 LANGUAGE TESTS:

The language tests consist of reading comprehension and vocabulary tests and provide an indication as to whether the testee possesses the necessary language ability which is required for further study. He should be able to understand and apply what he reads. The comprehension tests, in Afrikaans and English, consist of a passage which must be read and on which a number of questions must be answered. The vocabulary tests consist of sentences in which a word has been omitted. The testee must then select the correct word from the five possibilities given.

3.3.4 SPATIAL PERCEPTION:

This test is concerned with the testee's ability to represent figures in his imagination. A two-dimensional as well as a three-dimensional test has been included. In the two-dimensional test, he must decide which two figures will together form a square. The items of the three-dimensional test consist of cubes which are rotated in his mind and it is the testee's task to determine which cube is an exact replica of a given one.

3.3.5 NUMBER COMPREHENSION:

The ability to manipulate and apply fundamental principles and operations is tested in this case. The items include, *inter alia*, percentages, fractions, exponents and basic sets.

3.3.6 MATHEMATICAL ABILITY:

The universities offer Mathematics at two levels, viz. a preparatory course and the ordinary Mathematics course. Together with the test for number comprehension, this test should provide an indication of the testee's mathematical ability and the level at which he should start with mathematics.

3.4 THE POPULATION TESTED:

The following table indicates the numbers tested by sex and faculty. On arrival at the university all first year students received a note requesting their attendance at the testing sessions. These took place in their first week at Fort Hare and before registration day. This meant that many students who arrived after the test days in time for registration only were not included in the test programme. As it was impossible to arrange for two further test days during the term and as the tests were standardised for administration during the first few weeks of term, I had to be satisfied with the numbers attending. The 1976 figures represent only those students who returned after the closure of the university following the June unrest. Originally 424 had written the tests in 1976.

POPULATION TESTED

YEAR	MALES	FEMALES	TOTAL	FACULTY
1976	29	55	84	Arts
	32	11	43	Economic Sciences
	7	3	10	Education
	15	2	17	Agriculture
	30	4	34	Law
	48	20	68	Science
	161	95	256	TOTAL
1977	35	42	77	Arts
	43	14	57	Economic Sciences
	19	19	38	Education
	18	-	18	Agriculture
	61	10	71	Law
	57	33	90	Science
	233	118	351	TOTAL
1978	38	42	80	Arts
	31	31	62	Economic Sciences
	24	22	46	Education
	28	-	28	Agriculture
	38	10	48	Law
	89	31	120	Science
	248	136	384	TOTAL

3.5 THE FACTOR STUDY:

3.5.1 INTRODUCTION:

Each student has a score on nine of the ten individual tests. Only students who did mathematics up to matriculation level wrote the mathematical ability test. The means, standard deviations, standard errors, coefficients of skewness and kurtosis, variances and observed ranges of the test groups on the ten tests are based on raw scores of the combined 'subtests' of the five major dimensions.⁽³⁾ (Tables 1 to 5).*

The distributions on all five tests are positively skewed which indicates that they are a little too difficult for the population. In addition, all except the tests of Afrikaans verbal ability tend to be platykurtic which suggests that they might have high reliabilities. Grant and Schepers (1967) have argued the importance of producing tests with a platykurtic rather than a normal distribution as the former distribution provides a truly differentiating measure which spreads out the subjects as widely as possible.

The scores on the various tests were intercorrelated using the Pearson product-moment method (Table 6). The higher correlations tend to form conspicuous patterns, especially between the various 'subtests' of the five major dimensions. In order to assess whether or not these correspond to five separate factors, the matrix was submitted to a factor analysis using an iterative Principal Components method⁽⁴⁾ (Tables 7, 8 and 9). As the number of variables is less than twenty, two methods were used to decide on the number of factors to extract. Kaiser's criterion states that only the factors having eigenvalues greater than one should be considered as common factors. This equates with the default value set of the S.P.S.S. program. Using this criterion only two factors had eigenvalues over one. Cattell (1958), on the other hand, has argued that when the number of variables is less than twenty there is a tendency for too few factors to be extracted when using Kaiser's criterion. He suggests the use of the 'scree test' in which a graph is plotted of the eigenvalues against the factor number in order of extraction. Using this method, five factors would qualify, although, as is evident, factors 3, 4 and 5 contribute only a small amount to the percentage variance (Table 7a). The Burt-Banks (1952) formula⁽⁵⁾ was applied to determine the significance of the factor loadings. By it, the acceptable value for a loading increases as one progresses from the first factor to the higher factors.

* Tables 1-35, 37-41 and figures 1-6
are found on pages 95ff.

3.5.2 FACTOR ANALYSIS USING KAISER'S CRITERION:

Kaiser's criterion utilises only factors having eigenvalues greater than one. Factor one, with all the loadings significant at the 1% and 5% level, would appear to be a general intelligence factor (Table 7a). The highest loadings are those of the non-verbal reasoning and verbal reasoning tests which are combined as a general intellectual ability dimension by the battery authors. The lowest loadings are those for the various language tests. It would appear that the mathematical ability and spatial ability dimensions form a close correspondence with the general intellectual dimension. Factor two is divided into a language dimension and a mathematical-spatial dimension. The loadings of the general intellectual tests (verbal and non-verbal reasoning) are not significant.

These two factors were then rotated using the Varimax procedure which gives an orthogonal solution. The two factor grouping was confirmed (Table 7b). Factor one loads specifically on the non-verbal and verbal reasoning tests (general intellectual ability dimension), the numerical ability and mathematical ability tests (mathematical ability dimension), and the squares and three dimensional tests (spatial ability dimension). Factor two loads specifically on the four language tests, although the general intellectual ability test loadings are also significant at the 1% and 5% level.

3.5.3 FACTOR ANALYSIS USING CATTELL'S SCREE TEST:

Using Cattell's Scree Test five factors were extracted (Table 8a). Since 83.9% variance is accounted for by the first two factors any interpretation of the remaining three factors requires caution. The graph of the eigenvalues against the factor number shows clearly the points at which the curve straightens out. According to the scree test criteria it is at this point that further extraction should stop (fig. 1). The most marked straightening occurs after factor five although from factor three to factor five the curve begins to follow a fairly straight line. It was decided to extract five factors. Factor one and factor two reflect the general and language dimensions already described. Factors three, four and five are difficult to interpret (Table 8a). Rotation using the Varimax procedure does throw up the distinct test-dimensions, however (Table 8b). Factor three has high and significant loadings on the English verbal ability tests, factor four has high and significant loadings on the Afrikaans verbal ability tests and factor five has high and significant loadings on the general intellectual ability tests. Factor one has high and significant loadings on the

mathematical ability tests with smaller yet significant loadings on the general intellectual ability tests. Factor two has high and significant loadings on the tests of spatial ability and smaller yet significant loadings on the mathematical ability and general intellectual ability tests.

3.5.4 DISCUSSION:

Whilst the rotation of five factors does highlight the five dimensions of the Academic Aptitude Test, the limited contribution to the total percentage of variance by factors three, four and five would suggest that a two factor extraction is the more meaningful. The battery as a whole would appear to be measuring two dimensions; a general intellectual ability comprising verbal and non-verbal tests, tests of numerical and mathematical ability and tests of spatial ability on the one hand, and, on the other, a language dimension comprising of English and Afrikaans vocabulary and reading comprehension tests. The inter-test loadings on the various test-pairs confirm the efficacy of combining them to create five major test dimensions. They are recognizable combinations of variables.

The factor analysis on the separate tests was followed by a further analysis using an iterative Principal Components method this time on the five test pairs (Table 9a). Two factors with eigenvalues greater than one were extracted. A third, fourth and fifth factor was extracted also, in order to see whether a clear pattern emerged beyond factor two (Table 9b/c). Factor one on the unrotated matrix (Table 9b) is the general factor already discussed earlier, factor two is a language factor with insignificant loadings on the general, mathematical, spatial ability variables. They were, however, clearly separated from the language dimension. The significant loadings or patterns are to be found in the other factors extracted. A Varimax rotation of the factors confirmed the two factor pattern (Table 9c).

It would seem, therefore, that the Academic Aptitude Test is essentially testing two dimensions, a general intellectual aptitude and a language aptitude and its value as a device for subject selection, as is suggested by the authors, would seem doubtful. Its value as a general screening device, however, will be considered shortly in the prediction study.

3.6 TEST STABILITY:

The test was applied to three separate groups of students over three years. As it was impossible to conduct a test-retest reliability on the battery, and as the battery was standardized for students who were in their first weeks of university education, so precluding a second administration of

battery ...

battery later on in the same year, some other measure of stability of the test battery was required. For this purpose the results of the tests for each of the three years were submitted to a simple one-way analysis of variance (Table 10) (cf. Lambourne and Wheldall, 1979). The analysis of variance is usually used to test for changes in means, i.e. one would be testing whether the group averages remain the same from year to year. The procedure assumes no change in population variance. The results (Table 10) justify making the latter assumption. The F values are for testing for a change in population means. The F value for Afrikaans verbal ability is significant at the 5% level and there appears to have been a decline in Afrikaans verbal ability. For the other tests one can conclude that the test battery has been stable, no significant changes in the means having occurred over three years with different intake groups of students.

Another means of validating the battery was to calculate norms on the basis of the Fort Hare results and then compare them with the norms published by the authors of the battery. The procedures followed in calculating the norms for the individual sub-tests are outlined by Guilford (1973). The Human Sciences Research Council also supplied me with an outline of their procedures (cf. V. Paul) which did not differ from those of Guilford. A Fortran programme for calculating a C scale was written according to these procedures and the results were subsequently plotted by hand on normal probability paper. The C scale was subsequently condensed to a stanine scale for each of the tests (Table 23). No appreciable differences in ten published norms and those based on the results at Fort Hare are evident. The platykurtic and skewed distributions and the relative smallness of the Fort Hare test populations could account for the greater variations at the extremes of the scales. Equally important was the fact that only small differences in the cell scores were found between males and females. The published test norms do not distinguish between males and females, however.

3.7 THE PREDICTION STUDY:

The major purpose of this part of the study was to assess the predictive value of the Academic Aptitude Test. Two sets of variables were used: the students' matriculation examination results and scores on the aptitude battery.

The following questions were considered:

1. Are there any significant differences in scores on the Academic Aptitude Tests between males and females?
2. Are there any significant differences in scores on the Academic Aptitude Tests between students in different faculties?⁽⁶⁾
3. What criterion of academic success should be used?
4. (a) Is there any relationship between academic success and the aptitude scores?
 (b) Is there any relationship between matriculation results and academic success?
 (c) If there is, how can these variables be combined to predict academic success?

3.7.1 QUESTIONS 1 AND 2:

ARE THERE ANY SIGNIFICANT DIFFERENCES IN SCORES ON THE ACADEMIC APTITUDE TESTS BETWEEN MALES AND FEMALES, AND BETWEEN STUDENTS IN DIFFERENT FACULTIES?

3.7.1.1 Hypotheses:

The following hypotheses were tested:

(N1 represents the smaller sample)

(N2 represents the larger sample)

$H_0(1)$ There will be no significant difference between 1st year male (N2) and female (N1) students in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

$H_1(1)$ There will be a significant difference between 1st year male and female students overall in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(2 tailed: no directionality assumed)

$H_0(2)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year Arts faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

$H_1(2)$ There will be a significant difference between 1st year Science faculty students (N2) and 1st year Arts faculty students (N1) with the larger group (N2) being significantly better in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(1 tailed: directionality assumed) (Because of selection and because the majority of Science faculty rejects go to Arts)

- $H_0(3)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year Economic Science faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:
- (a) General Intellectual Ability Scale
 - (b) English Verbal Ability Scale
 - (c) Mathematical Ability Scale
 - (d) Afrikaans Verbal Ability Scale
 - (e) Spatial Ability Scale

- $H_1(3)$ There will be a significant difference between 1st year Science faculty students (N2) and 1st year Economic Science faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:
- (a) General Intellectual Ability Scale
 - (b) English Verbal Ability Scale
 - (c) Mathematical Ability Scale
 - (d) Afrikaans Verbal Ability Scale
 - (e) Spatial Ability Scale

(2 tailed: no directionality assumed)

- $H_0(4)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year Agricultural faculty students (N1) in terms of the following Academic Aptitude Subtests:
- (a) General Intellectual Ability Scale
 - (b) English Verbal Ability Scale
 - (c) Mathematical Ability Scale
 - (d) Afrikaans Verbal Ability Scale
 - (e) Spatial Ability Scale

$H_1(4)$ There will be a significant difference between 1st year Science faculty students (N2) and 1st year Agricultural faculty students (N1) with the larger group (N2) being significantly better in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(1 tailed: directionality assumed) ("Weaker" Science students unable to get into pure Science often opt for Agriculture)

$H_0(5)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year Education faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

$H_1(5)$ There will be a significant difference between 1st year Science faculty students (N2) and 1st year Education faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(2 tailed: no directionality assumed)

$H_0(6)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year Law faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

$H_1(6)$ There will be a significant difference between 1st year Science faculty students (N2) and 1st year Law faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(2 tailed: no directionality assumed)

With respect to English Verbal Ability (test b) and Afrikaans Verbal Ability (test d), a 1 tailed test of significance is used, directionality being assumed with the alternative hypothesis being: the smaller group (N1) (Law students) being significantly better than the larger group (N2) (Science students) in terms of scores on the English Verbal Ability Subtest and Afrikaans Verbal Ability Subtest.

$H_0(7)$ There will be no significant difference between 1st year Arts faculty students (N2) and 1st year Economic Science faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

$H_1(7)$...

$H_1(7)$ There will be a significant difference between 1st year Arts faculty students (N2) and 1st year Economic Science faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(2 tailed: no directionality assumed)

With respect to Mathematical Ability (test c), a 1 tailed test is used: directionality being assumed with the alternative hypothesis being:

1st year Economic Science faculty students (N1) are significantly better than 1st year Arts faculty students (N2) in terms of scores on the Mathematical Ability Subtest (test c).

$H_0(8)$ There will be no significant difference between 1st year Arts faculty students (N2) and 1st year Agriculture faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematics Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

$H_1(8)$ There will be a significant difference between 1st year Arts faculty students (N2) and 1st year Agriculture faculty students (N1) with the smaller group (Agriculture students) being significantly better in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematics Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(1 tailed: directionality assumed)

$H_0(9)$ There will be no significant difference between 1st year Arts faculty students (N2) and 1st year Education faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematics Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

$H_1(9)$ There will be a significant difference between 1st year Arts faculty students (N2) and 1st year Education faculty students (N1) with the smaller group (Education students) being significantly better in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematics Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(1 tailed: directionality assumed) (In general better students follow a science curriculum)

$H_0(10)$ There will be no significant difference between 1st year Arts faculty students (N2) and 1st year Law faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

$H_1(10) \dots$

H_1 (10) There will be a significant difference between 1st year Arts faculty students (N2) and 1st year Law faculty students (N1) with the smaller group (Law students) being significantly better than the larger group (Arts students) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(1 tailed: directionality assumed) (Higher percentage of Law students have 1st class matriculation passes)

H_0 (11) There will be no significant difference between 1st year Economic Science faculty students and 1st year Agriculture faculty students in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

H_1 (11) There will be a significant difference between 1st year Economic Science faculty students and 1st year Agriculture faculty students in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(2 tailed: no directionality assumed)

H_0 (12) There will be no significant difference between 1st year Economic Science faculty students and 1st year Education faculty students in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

H_1 (12) There will be a significant difference between 1st year Economic Science faculty students and 1st year Education faculty students in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(2 tailed: no directionality assumed)

H_0 (13) There will be no significant difference between 1st year Economic Science faculty students (N2) and 1st year Law faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

H_1 (13) There will be a significant difference between 1st year Economic Science faculty students (N2) and 1st year Law faculty students (N1) with the smaller group (Law students) being significantly better than the larger group (Economic Science students) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

and with the larger group (Economic Science students) being significantly better than the smaller group (Law students) in terms of scores on the Mathematical Ability Subtest (test c).

(1 tailed: directionality assumed)

H_0 (14) There will be no significant difference between 1st year Agriculture faculty students and 1st year Education faculty students in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

H_1 (14) There will be a significant difference between 1st year Agriculture faculty students and 1st year Education faculty students in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(2 tailed: no directionality assumed)

- $H_0(15)$ There will be no significant difference between 1st year Agriculture faculty students (N1) and 1st year Law faculty students (N2) in terms of scores on the following Academic Aptitude Subtests:
- (a) General Intellectual Ability Scale
 - (b) English Verbal Ability Scale
 - (c) Mathematical Ability Scale
 - (d) Afrikaans Verbal Ability Scale
 - (e) Spatial Ability Scale
- $H_1(15)$ There will be a significant difference between 1st year Agriculture faculty students (N1) and 1st year Law faculty students (N2) with the larger group (Law students) being significantly better than the smaller group (Agriculture students) in terms of scores on the following Academic Aptitude Subtests:
- (a) General Intellectual Ability Scale
 - (b) English Verbal Ability Scale
 - (d) Afrikaans Verbal Ability Scale
- and with the smaller group (Agriculture students) being significantly better than the larger group (Law students) in terms of the following Academic Aptitude Subtests:
- (c) Mathematical Ability Scale
 - (e) Spatial Ability Scale
- (1 tailed: directionality assumed)
-

- $H_0(16)$ There will be no significant difference between 1st year Education faculty students (N1) and 1st year Law faculty students (N2) in terms of scores on the following Academic Aptitude Subtests:
- (a) General Intellectual Ability Scale
 - (b) English Verbal Ability Scale
 - (c) Mathematical Ability Scale
 - (d) Afrikaans Verbal Ability Scale
 - (e) Spatial Ability Scale

$H_1(16)$...

H_1 (16) There will be a significant difference between 1st year Education faculty students (N1) and 1st year Law faculty students (N2) with the larger group (Law students) being significantly better than the smaller group (Education students) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (d) Afrikaans Verbal Ability Scale

and with the smaller group (Education students) being significantly better than the larger group (Law students) in terms of scores on the following Academic Aptitude Subtests:

- (c) Mathematical Ability Scale
- (e) Spatial Ability Scale

(I tailed: directionality assumed)

H_0 (17) There will be no significant difference between 1st year Science faculty students (N2) and 1st year students who were not selected for a place in the Science faculty in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

H_1 (17) ...

H₁(17) There will be a significant difference between 1st year Science faculty students (N2) and 1st year students who were not selected for a place in the Science faculty, with the larger group (those accepted (N2) being significantly better than the smaller group (those rejected, N1) in terms of scores on the following Academic Aptitude Subtests:

- (a) General Intellectual Ability Scale
- (b) English Verbal Ability Scale
- (c) Mathematical Ability Scale
- (d) Afrikaans Verbal Ability Scale
- (e) Spatial Ability Scale

(1 tailed: directionality assumed)

3.7.1.2 Method:

Because the distributions of the test scores were skewed and tended to be platykurtic, the Mann-Whitney U-test was used to test these hypotheses. It is one of the most powerful of the non-parametric tests, being almost as powerful as the t-test under common research conditions and especially with populations of the size in the present study. Furthermore, it does not require homogeneity of variance nor normality of distribution. However, the test is less powerful when large numbers of tied scores are encountered, owing to the assumption of continuity of distribution (Roscoe, 1969). This difficulty was not experienced in the analysis, however. A Fortran program was written following Siegel's (1956) procedures for large samples and correcting for ties (p. 126).

3.7.1.3 Discussion:

As a result of the statistical procedures followed, 53 null hypotheses were rejected at the 0.01 level of significance and 32 null hypotheses were retained at the same level of significance (Tables 12 and 13). As no differences occurred between the three year groups the combined U-test results are displayed in Table 11.

(i) On the General Intellectual Ability tests, students registered in the Science faculty fared significantly better than their counterparts in all other faculties. Students in the Agriculture faculty fared significantly better than students in the faculty of Arts, whilst students in the faculties

of Economic Sciences, Law and Education fared significantly better than students in the Arts faculty. Whilst the 1976 intake into the Science faculty was selected, the students entering the Science faculty in all three years had better matriculation results than those entering the other faculties (Table 14). In 1976, 30.8% of students in the Science faculty intake, or 58.3% of the total number of first class matriculation passes, registered in the Science faculty. In 1977 the pattern was more biased towards the Science faculty, with 26.7% of the Science faculty intake or 77.4% of the total number of first class passes registered there. In 1978, whilst 24.2% of the Science faculty intake had first class matriculation passes, this represented 59.2% of the total first class pass intake into the university.⁽⁷⁾ In addition all students accepted by the Science faculty have passed mathematics and a science, which is not the case in the other faculties. This could account for the superiority of students in the faculty of Science on these tests.

(ii) On the English Verbal Ability tests, students registered in the Science faculty fared significantly better than their counterparts in the faculties of Arts, Economic Sciences, Agriculture and Education. There is no significant difference between scores of the Science faculty students and the Law faculty students. Law faculty students fared significantly better than Arts and Economic Science faculty students. Education faculty students fared no better than Arts, Agriculture and Economic Science faculty students, nor did Arts faculty students fare significantly better than students in the faculties of Economic Science and Agriculture.

As with the General Intellectual Ability tests, the fact that students registering for degrees in Science tend to have a better high school record probably accounts for these results. If one considers the matriculation English symbols a similar pattern to these results is found. In 1976, 39.7% of the Science faculty intake which was 48.2% of the total number of first class passes in matriculation English registered for Science faculty courses. The 1977 and 1978 figures are less biased towards the Science faculty, however. In 1977, 30% of the Science faculty intake or 35.1% of the total University intake had a first class pass in matriculation English. In 1978, 13.3% of the Science faculty intake or 32% of the total University intake had a first class pass in matriculation English. The remaining students with a first class matriculation pass in English are fairly evenly scattered amongst the other faculties with most registered in the faculty of Arts (Table 14). This does not appear to have had any influence on the English Verbal Ability scores, however (Table 12).

(iii) On the tests of Mathematical Ability students registered in the faculty of Science fared significantly better than students in all the other faculties. Students registered in the faculty of Agriculture fared significantly better than students registered in the faculties of Economic Science, Law, Arts and Education. Education faculty students fared significantly better than students in the faculties of Arts and Law, whilst Economic Science faculty students fared significantly better than Law faculty students. There were no significant differences between the results of Arts and Economic Science students, Arts and Law students or between Education and Economic Science students. As a pass in matriculation mathematics is a requirement for admission to the faculty of Science and to certain courses in the faculty of Agriculture, the pre-eminence of these students on the tests of mathematical ability is obvious. From 1979 this requirement is being enforced in the faculty of Economic Sciences as the failure rate especially in Accountancy I has been very high. Given the large percentage of students over the past three years in the faculty of Economic Sciences who did not take mathematics up to matriculation level (1976 - 51.2%, 1977 - 38.6% and 1978 - 38.7%) this high failure rate is perhaps not surprising.

(iv) On the test of Afrikaans Verbal Ability there were eleven instances where the null hypothesis was retained. The significant differences in the scores were found between students registered in the faculties of Science and Agriculture, Arts and Law, Arts and Education, Education and Economic Sciences, Economic Sciences and Agriculture, Education and Agriculture, Education and Law, Agriculture and Law, Education and Science, Economic Sciences and Law and Law and Science. Students registered in the faculty of Science fared significantly better than Arts, Economic Sciences and Education students, whilst Economic Science and Agriculture students fared significantly better than Arts students. The overall pattern reflects the findings of Procter and Vorster (1976), who found a negative attitude to the Afrikaans language amongst a sample of Fort Hare students. This contrasted with a positive attitude to English.

(v) On the tests involving two and three dimensional perception, Spatial Ability, Science students fared significantly better than students in all the other faculties. Agriculture students fared significantly better than students registered for courses in Arts, Education, Law and Economic Sciences, and Law students fared significantly better than students in Arts. No

significant ...

significant differences were found in the results of Education and Economic Science students and between Economic Science, Education and Law students. The results on these tests seem to have divided the student population into two groups, those orientated towards Science based subjects and those of a Humanities orientation.

The overall pattern seems to suggest that students with above average matriculation results tend towards the sciences. The fact that selection does occur would appear to strengthen this tendency although no significant differences occurred between the scores on all the tests of those students who were refused admission to the faculty of Science and those not. As this 'refusal group' was fairly small (N = 63) no inferences to the veracity of the current selection system can be made. The system was not used in 1977 because of the requirement to enrol as many students as space permitted. The 1978 records of those rejected were unavailable to me. The computerised records' system has made no provision for the retention of this information.

Although it is interesting to see that males fared significantly better than females on all tests taken by the entire population, a similar pattern did not emerge within the Individual faculties (Table II, part Ia - d). Only on the tests of mathematical ability within the faculties of Science and Economic Sciences and on the tests of general intellectual ability within the faculty of Science did male students fare significantly better. This could perhaps be accounted for by the differences in the size of N between males and females in the various faculties. Hence the U-test was applied to the overall population only.

3.7.2 QUESTION 3:

WHAT CRITERION OF ACADEMIC SUCCESS SHOULD BE USED?

In any study involving predictor or independent variables the question of the choice of the criterion is crucial. Astin (1964) has commented that ...

"In any area of applied research, the criterion measure is an operational statement of the goals or desired outcomes of the program under study."

Astin argues that in such applied research the problem inevitably involves what he calls a "conceptual criterion"; a statement by the investigator of the aims and objectives of the research, and a "criterion performance"; any observable event which is judged to be relevant to the conceptual criterion.

In choosing examination performance as the "criterion performance" the problem faced is that the standards of performance on which it is based can change arbitrarily and are of only temporary value. Further, the matriculation examination is very much a hybrid of criterion and norm referenced tests which in the final analysis are 'fitted' to a national mean and distribution. The multiplicity of examining bodies and standards and the low reliability and validity of matriculation examinations creates problems for the researcher (Malherbe, 1974). At university level the specialization and diversity of the courses offered and followed by students make comparisons between faculties and within them problematical. Nevertheless, examination results have traditionally been used as criteria of academic success. Whilst there is much criticism of the use of examination results as criteria ...

"there are some criteria which, though imperfectly reliable, are important in their own right ..."

Cureton (1951).

Examination results are one such set of criteria. Wherry (1957), commenting on the use of such practical criteria, believes that ...

"These criteria possess a crude practicability against which one could find few objections if other factors were held constant. They are scarcely standards of which a psychometrician could be proud of in a technical sense."

Nonetheless, the most common predictor-criteria used in prediction studies are examination results and scores on other tests.

The importance of practical meaningful criteria together with the lack of any alternative has meant that in this research the matriculation results and end of first year examination results have been chosen as criteria. The form in which the matriculation results appear are as symbols on a 9 point scale, but the manner in which these results have been adjusted to meet a national normal distributions renders these symbols statistically valueless. The individual's actual subject marks are available in the case of 1st year examination results which makes this criterion of academic success more meaningful. Nevertheless, being aware of the inherent ambiguities in the use of examination marks as criteria it means an accurate means of predicting success is unobtainable, since this criterion of success is not completely accurate or a reliable measure. This means that the test-criterion correlations are relative to this particular applied situation.

3.7.3 QUESTION 4:

(a) IS THERE ANY RELATIONSHIP BETWEEN ACADEMIC SUCCESS AND THE APTITUDE SCORE?

As percentage marks for all courses are available it was felt that more meaningful comparisons are possible using standardized Z scores which produce the same spread across the different areas of study and on either side of the mean. Beyond this it is difficult to produce any greater accuracy, for each discipline requires different sets of abilities and qualities of mind.

Initially, therefore, Z scores on the various courses were calculated for each first year student. The data used was the student's final mark in a particular subject. A Fortran program was written for this purpose and followed the statistical procedures outlined by Guilford (1973). These Z scores were then totalled. In addition, all the raw scores on the Aptitude Test battery were reduced to stanines. Because of the high inter-correlation between the various test-pairs, stanines for the combined test-pairs were also used.

A major null hypothesis was tested: There will be no significant relationship between academic success and academic aptitude.

Using the Z scores obtained and the calculated test stanines, the χ^2 statistic was used to test the hypothesis on each of the individual Academic Aptitude Tests and on the combined test scores. A 9×7 table⁽⁸⁾ was constructed on each test. The results for all the combined tests yielded significant Chi Square levels at $p = 0.05$ (Table 15). This meant that the null hypothesis, that aptitude scores are independent of examination scores, was rejected. The AAT test manual suggests grouping students according to stanine rating. Hence, those students with aptitude stanines of 9, 8 and 7 are termed good, those with stanines of 6, 5 and 4, satisfactory and the rest as poor. The Z score range was between -5 and +5 and frequencies in the various cells showed a three group pattern. Accordingly the aggregate Z score scale was divided into three groups on the assumption that aggregate Z scores of less than 0 represent poor students, those between 0 and 2 satisfactory and those above 2 good. Tables 16 to 20 set out the results and, whilst it is impossible to tell the degree of association, the column and row totals do indicate the separation of good and poor students on all the tests. The significant Chi Square values confirm those previously obtained (Table 15) and the rejection of the null hypothesis.

Although ...

Although a strong association between the aptitude scores and examination scores had been found, it was not possible to use the Z score aggregates as an index of academic success. The Z score aggregate of a student getting a high Z score on two of four tests, for example, could be higher than that of a student who achieved moderate Z scores over four subjects. But when using the University's pass/fail criteria a contradiction could arise.⁽⁹⁾ The University's general criteria for the exclusion of students from one faculty or another on academic grounds are quite explicit. A first year student who fails to pass any of his subject/courses and who obtains an average percentage of less than 40% for all the courses for which he is registered is refused readmission to that faculty. The possibility that the results in a particular subject might be skewed or not normally distributed or have a lower Z value than in another subject does not influence the decision. So a student who happens to have chosen a particular combination of subjects could be more successful than he would have been had he chosen a different combination. Furthermore, to attain a rigorous comparability of Z scores, the distribution of scores on the various tests needs to be similar in shape. This they are not.

Hence it was necessary to adopt the University's criteria of success and to test whether or not any association between aptitude measures and the number of subjects failed existed.

The Chi Square statistic was used to test the association. The results (Table 21) reflect a significant association at $p < 0.01$ level between the tests and the number of subjects failed in 83.3% of the cases. No significant relationship was found on tests of English and Afrikaans Verbal Ability and Spatial Ability for students in Agriculture, and on Spatial Ability for students in the Arts and Education faculties. A difficulty was experienced equating the criteria of success used in the faculty of Agriculture, where a semester unit course structure exists, promotion to a second and subsequent semester depending on the passing of 65% of the course units, to the criteria used in the rest of the University. This could perhaps explain the poor relationship between academic success and the aptitude measures in the Agriculture faculty. An examination of the Chi Square tables in those instances where doubtful and insignificant relationships occurred revealed a number of empty cells. Following the condensing of the number of cells to overcome this, an improvement occurred in the relationships in all cases (Table 21, footnote). Overall, therefore, the null hypothesis was

rejected ...

rejected in all but two cases at the $p = 0.01$ level, and in all cases at the $p = 0.05$ level. Therefore a significant relationship existed between the various aptitude measures and the number of subjects failed or passed.

3.7.4 QUESTION 4:

(b) IS THERE ANY RELATIONSHIP BETWEEN MATRICULATION RESULTS AND ACADEMIC SUCCESS?

The majority of prediction studies have related matriculation or school results to university success (cf. Chapman et al, 1977). The results are contradictory, however, and in a South African context this could be explained by the inconsistencies in the final school examinations (Malherbe, 1977). Erens (1977) calls for caution too in placing too great a reliance on the matriculation results especially regarding calls to raise the minimum matriculation pass grade entry requirement for university (cf. France, 1975).

Raw matriculation scores are not available so use had to be made of the symbols awarded to students in their matriculation examinations. The Bantu Education Examinations Committee equates the symbol scale with the stanine scale, so symbols were recoded on to a 9 to 1 standard scale. For this analysis the following symbols were used: the English symbol, the Mathematics symbol, a Science symbol, the highest symbol of the remaining subjects offered (highest general symbol) and the aggregate symbol (cf. Table 14). These were chosen for the following reasons:

Firstly, English is the medium of instruction in the University and all communication, written and oral, between lecturer and student is through this medium.

Secondly, students have taken either a science and/or mathematics to matriculation level and entry into three faculties is now limited to students having a pass in matriculation mathematics. This is based on the assumption of some relationship to success of mathematics. The question one has to ask is, is this a valid assumption?

Thirdly, the matriculation aggregate symbol is an important criterion governing entry into the University and is also used in the award of bursaries.

Finally, the selection of the highest other symbol was on the assumption that this may provide an indication of subsequent university course selection.

A major null hypothesis was tested: There will be no significant relationship between academic success and matriculation results.

The Chi Square test was used to test this hypothesis on each of the selected matriculation subjects and the matriculation aggregate symbol, against the number of subjects failed at the end of the first year. A summary of the results (Table 22) indicates the poor level of association between matriculation subject results and the matriculation aggregate symbol, and academic success at first year level. The null hypothesis is retained in all but seven cases with the Alpha level set at 0.01. What is of interest is that it is in the Science faculty that significant associations exist in all but the matriculation general subject symbol. The selection of more able students, in terms of matriculation results, in the faculty of Science, did create a greater spread of symbols within the faculty and this no doubt resulted in the higher Chi Square values. The fact that the aggregate 'symbol range' of students is limited, with the majority having either a 'D' or 'E' symbol, especially in faculties other than the Science faculty, would partially account for the general lack of a significant association between matriculation results and academic success. The inconsistencies in the matriculation examinations themselves probably play an important part too. Over the three years of this study an average of 11.82% of the sample possessed a first class matriculation aggregate. This meant that the rest had either D or E symbol passes, the distribution being skewed and leptokurtic. But in the matriculation subject areas a greater symbol range does exist, so the argument used to account for the lack of association between the aggregate symbol and academic success is questionable here. With an alpha level set at $p = 0.05$ the null hypothesis is rejected in a further five cases. This gave the matriculation English symbol the greatest overall degree of association to academic success.

The general lack of association between matriculation symbols and academic success must, therefore, place in doubt the value placed in them. Yet the fact that in the faculty of Science, where selection on the basis of matriculation symbols takes place and where on all but the general subject symbol strong association occurs, the matriculation symbols would seem to be a useful discriminator. This would seem to justify the current selection procedures although, as was pointed out earlier, those selected scored significantly no better on the aptitude measures than those rejected. The number of students rejected, however, was relatively small but the fact that Science students scored significantly better than all the other students on all the aptitude measures and now have results showing a strong relationship to their matriculation symbols would seem to justify the current selection practices in the faculty of Science.

3.7.5 QUESTION 4:(c) IF THERE IS A RELATIONSHIP BETWEEN(i) MATRICULATION RESULTS AND ACADEMIC SUCCESS, AND/OR(ii) ACADEMIC APTITUDE AND ACADEMIC SUCCESS,HOW CAN THESE VARIABLES BE COMBINED TO PREDICT ACADEMIC SUCCESS?

Although the matriculation symbols showed little evidence of a relationship to academic success, matriculation results remain the most important criteria for university entrance. They possess a crude practicability in spite of their questionable predictive validity. As their use is unlikely to change, any predictive study of this nature should include them as variables. On the other hand, the scores on the academic aptitude tests have proven to be related to achievement as measured by the number of subjects passed (Table 21). Therefore, I wished to combine the scores mentioned above in some way so that the resultant score could be used as a basis for predicting whether the student will be 'successful' or not. Basically the resultant score is to be used to decide whether the student belongs to the population of 'successful' students or the population of 'unsuccessful' students. It was also necessary to go beyond this ordinary problem of discrimination and to specify some percentage indicative of the 'exposure to risk of failure' of a student with a specified resultant score.

The results of the previous comparisons, therefore, suggested that the aptitude measures could be used to assign new cases to one or the other of two or more groups. Because of the importance of the matriculation symbols these were included in the discriminant function analysis as well.

The discriminant analysis sub-program of the Statistical Package for the Social Sciences was used for this purpose and the discriminant analysis was performed using the Wilk's Lambda stepwise procedure. Through it two research objectives were pursued. Firstly, the success with which the discriminating variables actually discriminate when combined into discriminant functions was tested. Secondly, the prediction of group membership, success or failure, based on these discriminant functions, was computed.

The analysis was performed for the entire population, and then for each faculty group. Subsequently an analysis using only the matriculation results and then only the aptitude test scores was performed.

The logic behind the stepwise procedure is as follows. First, the variable for which the mean values in the five, and subsequently two, population groups is 'most different' is identified. For each variable the significance of this difference is measured by the F statistic and the variable with the

largest ...

largest F is entered. On successive steps the conditional distribution of each variable not yet entered is considered to assess its contribution. The stepwise process is stopped when no additional variables significantly contribute to the discrimination of the population.

Initially, because five groups⁽¹⁰⁾ existed, it was necessary to decide how many discriminant functions should be derived. The eigenvalues and their associated canonical correlations together with the changes in Wilk's Lambda and their associated Chi Square tests of statistical significance indicated that considerable discriminating power existed for the first function (Table 24 part a). Using the entire population, and before any functions were removed, lambda was .4622 which indicated further that considerable discriminating power existed in the variables being used.⁽¹¹⁾ After some of this had been removed by the first discriminating function, the Chi Square test indicated that no statistically significant amount of discriminating information remained. Hence it was decided that it would be of little value deriving a second and subsequent discriminating function. The evidence in the table of group centroids (Table 24 part b) in the reduced space defined by the discriminant functions would support this decision. The first function distinguishes those students in group 0, i.e. those who passed all their subjects, from those students in group 4, i.e. those who failed four or more subjects. The lack of distinction between groups in the remaining functions confirms the evidence already presented. (See figure 2 representing group clusters). Further evidence in support of this decision was derived from the table of prediction results (Table 24, part c). With only an overall 52.44% of 'grouped' cases correctly classified, and on the basis that higher percentages of prediction were formed in the 0 - 0 group and the 4 - 4 group, a simpler and cruder pass/fail dichotomy was decided upon. If a student in any faculty fails more than two first year subjects in the first year of study, it will take him an additional year to complete his degree.

Hence, it was decided to group the students as follows: those failing none, one or two subjects into group one, and those failing three, four or more subjects into group two.

In the analysis using the entire population the stepwise procedure confirmed the results of the factor analysis. The variables with the largest entry criteria and 'F to remove' are aptitude measures and more specifically the tests of General Intellectual Ability, English Verbal Ability and Mathematical Ability (Table 25). These variables also produced a statistically

significant (Chi Square 299.758, df 6, $p = .000$) and a fairly high degree of separation (Lambda = .5849 and Canonical Correlation = .644) for the only discriminant function. The standardised discriminant function coefficients also indicate the relative importance of the variables submitted to analysis, and thereby also confirm previous findings.

The unstandardised coefficients are used to obtain a discriminant score for the function by multiplying each coefficient by the respective variable value and summing the products plus the constant. These discriminant scores are located on the continuum representing the range of the function (figs. 3 - 7). The very strict dividing line between groups 1 and 2 could result in possible misinterpretation, although, as I have already remarked, by providing a pass/fail dichotomy which does not make any claim to any absolute specificity, as might have been done when using five groups, the essential identification purposes of the research are preserved. Although the probability of correct membership classification in group 2, i.e. those students regarded as being at risk, was as high as 87.1%, it would seem realistic to set aside a 10% overlap or uncertainty zone on the group one side of the dividing line.

In the analysis using the scores of students in the faculties of Arts and Education⁽¹²⁾ (Table 26), a similar pattern occurs to that described above. The most important difference concerns the variables included in the analysis. The matriculation results are not included nor is the Spatial Aptitude variable. This is not surprising considering the nature of the course offered for an Arts or Education degree. The importance of the General Intellectual Ability test is most marked. Although a matriculation pass in mathematics is not required for entry into either of these faculties, the contribution of mathematical aptitude to the discriminant function would seem to point to the importance of this aptitude to academic success. The pattern of results for students registered in the faculty of Economic Sciences (Table 27) reflects a smaller lambda, and hence greater discriminating power, and a higher canonical correlation than occurred with Arts and Education faculty students. As with the latter population the test of Spatial Aptitude was not included, although the matriculation science symbol was. The 1978 sample had all taken courses in mathematics at school and, as this is invariably taught with a science, a de facto selection of students occurs.

A marked difference occurs in the variables included in the list of discriminant function coefficients of students in the faculty of Law

(Table 28). Three matriculation variables are included, matriculation English, General Subject and the aggregate symbol. The English symbol makes a relatively important contribution to the discriminant function, and with the larger contribution of the General Intellectual Ability aptitude measures, and the English Verbal Ability aptitude measures and a smaller contribution from the Afrikaans Verbal Ability aptitude measures, the orientation towards language and general intellectual ability is most marked. This corresponds with the course demands in the faculty of Law.

Three matriculation variables are included with all five aptitude variables in the faculties of Science and Agriculture (Table 29). The orientation is towards scientific and general intellectual ability although the importance of English language ability is marked. As with the results in the other faculty groups, the variables making up the discriminant function produced a statistically significant and fairly high degree of separation.

3.7.6 DISCUSSION:

Firstly, the evidence reflects the relative weakness of matriculation results in predicting academic success and confirms the earlier findings. This suggests, in the light of the favourable showing of the aptitude measures, that some alternative or additional criteria for university admission be considered.

Secondly, the orientation of the variables included in the analyses of the different faculty groups would seem to suggest that the aptitude test battery could provide a general index for faculty-course selection. Certainly the distinction between the variables included in the analysis in the faculty of Law reveals a different emphasis to those included in the analysis in the faculty of Science, but the overall number of variables is so small that a generalised conclusion along these lines is not possible. As I pointed out in the factor study of the Academic Aptitude Test battery, two major factors emerged only, a general intellectual - mathematical factor and a linguistic factor.

Although the cut-off score differs between faculties (Table 30), this is not markedly so.

TABLE 30⁽¹³⁾Cut-off Scores by Faculty

<u>Faculty</u>	<u>Discriminant Score</u>
Arts and Education	0.126
Economic Sciences	0.206
Law	-0.058
Science and Agriculture	0.309
Entire Sample	0.247

That they do, means that a student whose score on the discriminant function is, for example, equal to 0.00 will find himself in a slightly less precarious position in all faculties other than Law. The range of differences between these cut-off points is too small to justify counselling a student to study in the faculty of Science, for example, rather than in Law, however. It would seem, on the basis of this evidence, therefore, that the Academic Aptitude Test battery is not a particularly good device for course selection. As a general predictor of academic success, however, and more especially as a device for identifying students at risk, the contingency tables would support the claim that it is a useful instrument. The matriculation results, however, would seem to serve neither function.

This conclusion is confirmed when analysing the discriminatory power of the aptitude measures and the matriculation symbols separately (Tables 31 to 35 and 37 to 41).

In the analysis using the entire population, the variable with the largest entry criterion is matriculation mathematics followed by matriculation English. This confirms other findings (Smit, 1971) which emphasized the relative importance to academic success of mathematical and linguistic ability. Whilst the single discriminant function was found to be statistically significant, the high Lambda and the low canonical correlation indicates the weakness of the matriculation variables to produce an acceptable degree of separation between the two groups (those who pass and those who fail), so confirming the preliminary findings (3.7.4, part b). A 66.4% correct classification (Table 31), as distinct from an 81.8% correct classification (Table 37) for the aptitude measures taken separately, and an overall 82.3% correct classification (Table 25) of the variables, provides an indication of the relative predictive strengths of the two groups of variables.

In the analysis for the separate faculties a similar pattern emerges with the mathematical and English symbols generally being the most important (Tables 32 to 35).

TABLE 36
Ranked Contribution of Matriculation Symbols

FACULTY	Entire Population	Arts/ Education	Economic Sciences	Law	Science Agriculture
V A R I A B L E S	Mathematics English Science General -	Mathematics Aggregate English Science General	English Mathematics Science Aggregate General	English Science Aggregate - -	Mathematics English Aggregate Science -

Of interest is the higher percentage of correct classification which was recorded for the faculties of Science and Agriculture (Table 35). This can be accounted for by the selection of students in the Science faculty and the overall higher level of ability of these students.

Yet the overall high lambda and low canonical correlation indicates the weakness of these variables to produce an acceptable level of separation between the two groups; those at risk and those not.

In contrast, the aptitude results on their own produced a fairly high degree of separation between the two groups with an overall 81.8% correct prediction classification. The variables in order of importance for the entire population and the individual faculties show only minor differences (Table 42). This would seem to confirm the doubt expressed earlier concerning the usefulness of the battery for course selection.

TABLE 42

Ranked Contribution of Aptitude Scores

FACULTY		Entire Population	Arts/ Education	Economic Sciences	Law	Science/ Agriculture
V A R I A B L E S	1	General Intellectual Ability	General Intellectual Ability	General Intellectual Ability	English Verbal Ability	General Intellectual Ability
	2	English Verbal Ability	English Verbal Ability	Mathematical Ability	General Intellectual Ability	English Verbal Ability
	3	Mathematical Ability	Mathematical Ability	English Verbal Ability	Spatial Ability	Mathematical Ability
	4	Spatial Ability	Afrikaans Verbal Ability	Spatial Ability	Mathematical Ability	Spatial Ability
	5	Afrikaans Verbal Ability	-	Afrikaans Verbal Ability	Afrikaans Verbal Ability	Afrikaans Verbal Ability

3.8 CONCLUSION:

This empirical aspect of the study was concerned with:

- (i) An analysis of the relationship to academic success of two groups of measures; the national matriculation examination and the Academic Aptitude Test for black university students;
- (ii) The development of an index of risk, by which students at risk could be identified early in their university careers;
- (iii) An overall assessment of the Academic Aptitude Test battery.

The evidence suggests:

- (i) that matriculation results are not adequate predictors of academic success;
- (ii) that selection on the basis of matriculation results alone does appear to improve the candidates' chances of success;
- (iii) that the Academic Aptitude Test, in measuring essentially two dimensions, a general intellectual-mathematical factor and a linguistic factor, provides a powerful index of academic success;
- (iv) that the Academic Aptitude Test does not appear to be useful as a device for course selection.

On ...

On the basis of this it is recommended that the University, because of its 'open⁽¹⁴⁾ admissions policy', introduce the Academic Aptitude Tests as a means of identifying students at risk. Support services could then be directed at a particular target population.

FOOTNOTES

- (1) Miller, G.W. (1970) cites a number of studies which have examined the relationship of school performance to university performance. These indicate that:
- (i) Correlations between secondary and tertiary academic results are not very impressive, accounting for about 10% of the variance in university performance.
 - (ii) Correlations between academic results in various subjects taken up to matriculation level and subjects taken at university level are higher, accounting for about 25% of the variance in university performance.
- Miller concludes that ...
- "selection by matriculation results ... is ... still too blunt an instrument to be used on its own."*
- (2) James Drever (1972) cites an example in which the quality of candidates was improved in an annual examination whose failure rate was around 50%. The improvement should theoretically have halved the failure rate, but in fact it only dropped to 43% and over the next three years it climbed back to 50%, the quality of the candidates remaining at the highest level.
- (3) The test manual suggests combining the various pairs to provide the following dimensions:
- | | |
|---------------------------------|------------------------------|
| Non-verbal reasoning | General Intellectual Ability |
| Verbal reasoning | |
| English Vocabulary | English Verbal Ability |
| English Reading Comprehension | |
| Number Comprehension | Mathematical Ability |
| Mathematical Ability | |
| Afrikaans Vocabulary | Afrikaans Verbal Ability |
| Afrikaans Reading Comprehension | |
| Squares | Spatial Ability |
| Spatial Perception | |
- (4) Method of principal factoring with iterations devised by Jae-On Kim, published in Statistical Package for the Social Sciences, 1975, McGraw Hill.
- (5) Quoted in Child, D., 1970.
- (6) Questions 1 and 2 will be considered together.

- (7) These percentages are based only on the students who wrote the Aptitude Tests. Whilst those who did represented 35.8%* of the initial first year intake in 1976, 68.2% of the total first year intake in 1977 and 54.3% of the total first year intake in 1978, the rapid increase in student numbers over the past five years seems to correspond with a decrease in the number of students with first class matriculation passes. Add to this the closures of many black schools in 1976 and the tensions prevailing in them in the post-Soweto years, the mass resignations of teachers which occurred in black schools following 1976, the adjusting of matriculation symbols by the examination's board and then the expansionist policy of the University, caution is required when viewing these trends.

In 1976, 711 students were registered for the first time in the first year. 6.8% had 1st Class Matriculation passes.

In 1977, 515 students were registered for the first time in the first year, 6.1% had 1st Class Matriculation passes.

In 1978, 689 students were registered for the first time in the first year. 5.5% had 1st Class Matriculation passes.

The first year intake numbers reflect this:

1976 = 645

1977 = 515

1978 = 689

1979 = 1295.

*Although the present figure recorded is 35.8% of the intake (N = 645), initially 59.8% of the original intake (N = 711) were tested. Those students who failed to return to the University after its closure following unrest on the campus in 1976 were removed from the analysis.

- (8) Z score cells (7 columns) ranged from $Z = -5$ to $Z = +5$. The aptitude scores were reduced to stanines and were grouped in Table 16.
- (9) This in fact was the case. There was no relationship between aggregate Z scores and the number of subjects failed by the students. Yet, as I pointed out, a strong relationship exists between aptitude scores and the Z scores.

- (10) These five groups represented those students who failed 0, 1, 2, 3 or 4 or more subjects at the end of the first year.
- (11) Similar evidence was found in each of the analyses conducted for the individual faculties.
- (12) These were combined as the overall numbers in the faculty of Education were small and because the majority of these students were taking Arts faculty courses.
- (13) See also the territorial maps (figures 3 - 7) for the various faculties.
- (14) Subject to the possession of a matriculation certificate or a mature age certificate, and the various ethnic requirements.

Study of First Year Aptitude ScoresTABLE 1GENERAL INTELLECTUAL ABILITY

MEAN	29.530	STD ERROR	0.324	MEDIAN	29.413
MODE	28.000	STD DEV	10.169	VARIANCE	103.379
KURTOSIS	-0.207	SKEWNESS	0.359	RANGE	51.000
MINIMUM	6.000	MAXIMUM	57.000		

TABLE 2ENGLISH VERBAL ABILITY

MEAN	27.769	STD ERROR	0.338	MEDIAN	26.353
MODE	24.000	STD DEV	10.600	VARIANCE	112.363
KURTOSIS	-0.131	SKEWNESS	0.344	RANGE	60.000
MINIMUM	0.000	MAXIMUM	60.000		

TABLE 3MATHEMATICAL ABILITY

MEAN	21.500	STD ERROR	0.445	MEDIAN	21.184
MODE	16.000	STD DEV	9.665	VARIANCE	93.412
KURTOSIS	-0.195	SKEWNESS	0.235	RANGE	56.000
MINIMUM	1.000	MAXIMUM	57.000		

TABLE 4AFRIKAANS VERBAL ABILITY

MEAN	24.061	STD ERROR	0.344	MEDIAN	22.895
MODE	20.000	STD DEV	10.743	VARIANCE	115.893
KURTOSIS	0.082	SKEWNESS	0.419	RANGE	57.000
MINIMUM	0.000	MAXIMUM	57.000		

TABLE 5SPATIAL ABILITY

MEAN	25.058	STD ERROR	0.356	MEDIAN	23.528
MODE	23.000	STD DEV	11.165	VARIANCE	124.662
KURTOSIS	-0.172	SKEWNESS	0.365	RANGE	58.000
MINIMUM	1.000	MAXIMUM	59.000		

TABLE 6

<u>CORRELATION MATRIX</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
1. Non-verbal reasoning										
2. Verbal reasoning	0.89									
3. English vocabulary	0.36	0.41								
4. English reading comp.	0.37	0.40	0.86							
5. Number comprehension	0.67	0.69	0.27	0.24						
6. Afrikaans vocabulary	0.29	0.27	0.69	0.71	0.18					
7. Afrikaans reading comp.	0.36	0.31	0.63	0.67	0.21	0.86				
8. Squares	0.71	0.73	0.13	0.19	0.52	0.13	0.12			
9. Spatial perception (3D)	0.62	0.64	0.14	0.21	0.58	0.11	0.09	0.91		
10. Mathematical ability	0.68	0.67	0.11	0.18	0.88	0.12	0.15	0.62	0.63	

TABLE 7a

1. FACTOR ANALYSIS FROM MATRIX

Variable	Estimated Communality	Factor	Eigen- Value	% of Var.	Cum. %
Non-verbal reasoning	0.824	1	5.130	51.3	51.3
Verbal reasoning	0.850	2	2.644	26.4	77.7
English vocabulary	0.813	3	0.727	7.3	85.0
English reading comp.	0.801	4	0.534	5.3	90.3
Number comprehension	0.855	5	0.437	4.4	94.7
Afrikaans vocabulary	0.790	6	0.170	1.7	96.4
Afrikaans reading comp.	0.770	7	0.130	1.3	97.7
Squares	0.901	8	0.100	1.0	98.7
Spatial perception	0.870	9	0.081	0.8	99.5
Mathematical ability	0.848	10	0.047	0.5	100.0

2. FACTOR MATRIX USING PRINCIPAL FACTOR WITH ITERATIONS

Variable	Factor 1	Factor 2
Non-verbal reasoning	-0.856	0.195
Verbal reasoning	-0.870	0.203
English vocabulary	-0.571	-0.631
English reading comprehension	-0.606	-0.626
Number comprehension	-0.736	0.289
Afrikaans vocabulary	-0.528	-0.700
Afrikaans reading comprehension	-0.532	-0.644
Squares	-0.735	0.421
Spatial perception	-0.706	0.413
Mathematical ability	-0.728	0.407

Variable	Estimated Communality	Factor	Eigen- value	% of Var.	Cum. %
Non-verbal reasoning	0.771	1	4.855	57.2	67.2
Verbal reasoning	0.798	2	2.371	32.8	100.0
English vocabulary	0.725				
English reading comp.	0.760				
Number comprehension	0.625				
Afrikaans vocabulary	0.769				
Afrikaans reading comp.	0.698				
Squares	0.717				
Spatial perception	0.669				
Mathematical ability	0.695				

TABLE 7b

VARIMAX ROTATED FACTOR MATRIX

Variable	Factor 1	Factor 2
Non-verbal reasoning	0.827	0.293
Verbal reasoning	0.843	0.294
English vocabulary	0.145	0.939
English reading comprehension	0.177	0.853
Number comprehension	0.776	0.149
Afrikaans vocabulary	0.072	0.874
Afrikaans reading comprehension	0.105	0.829
Squares	0.846	0.038
Spatial perception	0.817	0.029
Mathematical ability	0.832	0.046

TRANSFORMATION MATRIX

	Factor 1	Factor 2
Factor 1	-0.845	-0.535
Factor 2	0.535	-0.845

FACTOR SCORE COEFFICIENTS

Variable	Factor 1	Factor 2
Non-verbal reasoning	0.176	0.041
Verbal reasoning	0.256	0.036
English vocabulary	-0.021	0.211
English reading comprehension	-0.047	0.304
Number comprehension	0.087	-0.004
Afrikaans vocabulary	-0.060	0.357
Afrikaans reading comprehension	-0.037	0.184
Squares	0.178	-0.084
Spatial perception	0.193	-0.046
Mathematical ability	0.255	-0.070

TABLE 8a

FACTOR ANALYSIS FROM MATRIX

Variable	Estimated Communality	Factor	Eigen- Value	% of Var.	Cum. %
Non-verbal reasoning	0.824	1	5.137	51.4	51.4
Verbal reasoning	0.849	2	2.661	26.6	78.0
English vocabulary	0.889	3	0.727	7.3	85.3
English reading comp.	0.982	4	0.553	5.5	90.8
Number comprehension	0.869	5	0.440	4.4	95.2
Afrikaans vocabulary	0.789	6	0.149	1.5	96.7
Afrikaans reading comp.	0.773	7	0.130	1.3	98.0
Squares	0.901	8	0.099	1.0	99.0
Spatial perception	0.872	9	0.064	0.6	99.6
Mathematical ability	0.863	10	0.039	0.4	100.0

FACTOR MATRIX USING PRINCIPAL FACTOR WITH ITERATIONS

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Non-verbal reasoning	-0.860	0.192	-0.016	0.007	0.337
Verbal reasoning	-0.872	0.198	0.004	0.119	0.301
English vocabulary	-0.601	-0.704	0.015	0.412	-0.075
English reading comp.	-0.609	-0.639	0.066	0.203	-0.027
Number comprehension	-0.772	0.313	-0.482	0.020	-0.168
Afrikaans vocabulary	-0.526	-0.697	0.030	-0.299	-0.063
Afrikaans reading comp.	-0.541	-0.667	-0.323	-0.385	0.063
Squares	-0.762	0.449	0.443	-0.071	-0.063
Spatial perception	-0.724	0.432	0.332	-0.027	-0.243
Mathematical ability	-0.738	0.415	-0.331	-0.073	-0.131

Variable	Estimated Communality	Factor	Eigen- value	% of Var.	Cum. %
Non-verbal reasoning	0.890	1	5.046	55.6	55.6
Verbal reasoning	0.904	2	2.569	28.3	83.9
English vocabulary	0.987	3	0.655	7.2	91.1
English reading comp.	0.834	4	0.475	5.2	96.3
Number comprehension	0.954	5	0.335	3.7	100.0
Afrikaans vocabulary	0.856				
Afrikaans reading comp.	0.891				
Squares	0.937				
Spatial perception	0.881				
Mathematical ability	0.850				

TABLE 8b

VARIMAX ROTATED FACTOR MATRIX

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Non-verbal reasoning	0.432	0.386	0.137	0.205	0.839
Verbal reasoning	0.435	0.483	0.213	0.210	0.571
English vocabulary	0.168	0.136	0.853	0.371	0.064
English reading comp.	0.096	0.126	0.836	0.415	0.160
Number comprehension	0.923	0.269	0.097	0.092	0.185
Afrikaans vocabulary	0.102	0.091	0.424	0.784	0.079
Afrikaans reading comp.	0.071	0.065	0.319	0.890	0.159
Squares	0.239	0.885	0.103	0.067	0.286
Spatial perception	0.326	0.880	0.124	0.076	0.131
Mathematical ability	0.759	0.362	0.165	0.074	0.298

TRANSFORMATION MATRIX

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	-0.499	-0.516	-0.413	-0.390	-0.402
Factor 2	0.357	0.408	-0.554	-0.603	0.188
Factor 3	-0.670	0.722	0.082	-0.030	-0.149
Factor 4	0.300	0.072	0.574	-0.483	-0.585
Factor 5	-0.291	-0.203	0.432	-0.500	0.662

TABLE 9a

TABLE 9a

CORRELATION COEFFICIENTS

Variable	Gen.Int.Ab.	Eng.Verb.	Math.	Afrik.Verb.	Spa.Ab.
General Int. Ability	1.000	0.407	0.678	0.296	0.613
English Verbal Ab.	0.407	1.000	0.261	0.523	0.225
Mathematical Ability	0.678	0.261	1.000	0.228	0.474
Afrikaans Verbal Ab.	0.296	0.523	0.228	1.000	0.192
Spatial Ability	0.613	0.225	0.474	0.192	1.000

Variable	Estimated Communality	Factor	Eigen- value	% of Var.	Cum. %
General Intellectual Ab.	0.610	1	2.595	51.9	51.9
English Verbal Ability	0.345	2	1.126	22.5	74.4
Mathematical Ability	0.467	3	0.529	10.6	85.0
Afrikaans Verbal Ab.	0.284	4	0.482	9.6	94.7
Spatial Ability	0.383	5	0.267	5.3	100.0

TABLE 9b

FACTOR MATRIX USING PRINCIPAL FACTOR WITH ITERATIONS

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
General Int. Ab.	-0.896	-0.234	0.029	-0.127	0.021
English Verbal Ab.	-0.569	0.511	0.031	-0.119	-0.013
Mathematical Ability	-0.705	-0.250	-0.207	0.052	-0.012
Afrikaans Verbal Ab.	-0.486	0.515	-0.030	0.141	0.017
Spatial Ability	-0.631	-0.246	0.197	0.119	-0.011

Variable	Estimated Communality	Factor	Eigen- value	% of Var.	Cum.
General Intellectual Ab.	0.874	1	2.259	72.7	72.7
English Verbal Ability	0.600	2	0.704	22.6	95.3
Mathematical Ability	0.606	3	0.081	2.6	97.9
Afrikaans Verbal Ab.	0.523	4	0.067	2.2	100.0
Spatial Ability	0.508	5	-0.001	-0.0	100.0

TABLE 9c

VARIMAX ROTATED FACTOR MATRIX

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
General Int. Ab.	0.875	0.276	0.014	0.175	0.036
English Verbal Ab.	0.202	0.731	-0.003	0.158	-0.007
Mathematical Ability	0.729	0.168	0.209	-0.052	-0.014
Afrikaans Verbal Ab.	0.141	0.700	0.007	-0.114	0.007
Spatial Ability	0.671	0.132	-0.192	-0.048	-0.014

TRANSFORMATION MATRIX

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	-0.844	-0.535	-0.018	-0.055	-0.006
Factor 2	-0.535	0.845	-0.008	0.008	-0.003
Factor 3	0.011	-0.004	-0.982	0.186	0.012
Factor 4	0.045	0.036	-0.185	-0.979	-0.078
Factor 5	-0.002	0.001	-0.003	-0.079	0.997

FACTOR SCORE COEFFICIENTS

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
General Int. Ab.	0.681	-0.017	-0.037	0.479	0.126
English Verbal Ab.	-0.137	0.523	-0.014	0.222	-0.037
Mathematical Ability	0.230	-0.039	0.408	-0.274	-0.068
Afrikaans Verbal Ab.	-0.078	0.448	0.001	-0.270	0.014
Spatial Ability	0.191	-0.042	-0.360	-0.211	-0.054

T A B L E 10

ANALYSIS OF VARIANCE

1. GENERAL INTELLECTUAL ABILITY

Variable	Code	Sum	Mean	Std.Dev.	Sum of Sq.	N
Year	6.00	7812.000	30.516	10.804	29765.937	(256)
Year	7.00	10010.000	28.518	9.744	33231.630	(351)
Year	8.00	11154.000	29.823	10.056	37720.353	(374)
TOTAL		28976.000	29.537	10.170	100717.920	(981)

ANALYSIS OF VARIANCE TABLE

	Sum of Squares	Degrees of Freedom	Mean Square
Between Groups	639.9719	(2)	319.9859
Within Groups	<u>100717.9201</u>	(978)	102.9836
TOTAL	101357.8919	(980)	

F = 3.1072 NOT SIGNIFICANT

3. MATHEMATICAL ABILITY

Variable	Code	Sum	Mean	Std Dev.	Sum of Sq.	N
Year	6.00	5113.000	26.824	9.929	15478.437	(158)
Year	7.00	6494.000	18.554	12.641	55770.469	(350)
Year	8.00	7335.000	19.665	12.671	59731.110	(373)
TOTAL		18942.000	21.501	13.225	130980.015	(881)

ANALYSIS OF VARIANCE TABLE

	Sum of Squares	Degrees of Freedom	Mean Square
Between Groups	930.234	(2)	465.117
Within Groups	<u>130980.015</u>	(878)	149.180
TOTAL	131910.249	(880)	

F = 3.1178 NOT SIGNIFICANT

2. ENGLISH VERBAL ABILITY

Variable	Code	Sum	Mean	Std Dev.	Sum of Sq.	N
Year	6.00	7294.000	28.492	10.272	26905.984	(256)
Year	7.00	9918.000	28.256	10.441	38154.923	(351)
Year	8.00	10038.000	26.840	10.929	44550.374	(374)
TOTAL		27250.000	27.778	10.602	109611.282	(981)

ANALYSIS OF VARIANCE TABLE

	Sum of Square	Degrees of Freedom	Mean Square
Between Groups	540.2738	(2)	270.1369
Within Groups	<u>109611.2818</u>	(978)	112.0770
TOTAL	110151.5556	(980)	

F = 2.4103 NOT SIGNIFICANT

4. AFRIKAANS VERBAL ABILITY

Variable	Code	Sum	Mean	Std Dev.	Sum of Sq.	N
Year	6.00	6851.000	26.762	10.220	26638.465	(256)
Year	7.00	9096.000	25.914	10.253	36793.436	(351)
Year	8.00	7657.000	20.473	10.585	41793.233	(374)
TOTAL		23604.000	24.061	10.743	105225.133	(981)

ANALYSIS OF VARIANCE TABLE

	Sum of Square	Degrees of Freedom	Mean Square
Between Groups	1027.197	(2)	513.599
Within Groups	<u>105225.133</u>	(978)	107.592
TOTAL	106252.330	(980)	

F = 4.7736 SIGNIFICANT

5. SPATIAL ABILITY

Variable	Code	Sum	Mean	Std Dev.	Sum of Sq.	N
Year	6.00	6569.000	25.660	11.646	34587.434	(256)
Year	7.00	8994.000	25.624	10.666	39814.359	(351)
Year	8.00	9011.000	24.093	11.258	47257.725	(374)
TOTAL		24574.000	25.050	11.168	121677.517	(981)

ANALYSIS OF VARIANCE TABLE

	Sum of Squares	Degrees of Freedom	Mean Square
Between Groups	553.035	(2)	276.517
Within Groups	<u>121677.517</u>	(978)	124.415
TOTAL	122230.552	(980)	

F = 2.2225 NOT SIGNIFICANT

U TEST1a All male students (N₂) with all female students (N₁)

Test 1	U = 129956.000	Z = 4.633	(e)
Test 2	U = 124920.500	Z = 3.447	(e)
Test 3	U = 124824.500	Z = 3.425	(e)
Test 4	U = 122855.000	Z = 2.960	(d)
Test 5	U = 151565.000	Z = 9.721	(e)

Two tailed

1b Arts males (N₁) with Arts females (N₂)

Test 1	U = 6068.000	Z = -0.656	
Test 2	U = 5507.000	Z = -1.785	
Test 3	U = 6232.000	Z = -0.329	
Test 4	U = 6490.500	Z = 0.194	
Test 5	U = 5179.000	Z = -2.447	(b)

Two tailed

1c Economic Sciences males (N₂) with females (N₁)

Test 1	U = 3095.500	Z = 0.449	
Test 2	U = 2950.000	Z = -0.063	
Test 3	U = 3916.000	Z = 3.340	(e)
Test 4	U = 3347.500	Z = 1.337	
Test 5	U = 2867.500	Z = -0.354	

Two tailed

1d Law males (N₂) with Law females (N₁)

Test 1	U = 1602.500	Z = 0.274	
Test 2	U = 1681.000	Z = 0.668	
Test 3	U = 1344.500	Z = -1.024	
Test 4	U = 1650.500	Z = 0.515	
Test 5	U = 1755.000	Z = 1.039	Two tailed

1e Science males (N₂) with Science females (N₁)

Test 1	U = 9845.500	Z = 2.760	(c)
Test 2	U = 9283.500	Z = 1.846	
Test 3	U = 11907.000	Z = 6.109	(e)
Test 4	U = 8698.000	Z = 0.894	
Test 5	U = 9685.000	Z = 2.499	(b)

Two tailed

2 Science students (N₂) with Arts students (N₁)

Test 1	U = 55273.500	Z = 14.028	(e)
Test 2	U = 41915.500	Z = 5.939	(e)
Test 3	U = 61059.000	Z = 17.545	(e)
Test 4	U = 38669.000	Z = 3.973	(e)
Test 5	U = 50376.500	Z = 11.063	(e)

One tailed

3 Science students (N₂) with Economic Sciences students (N₁)

Test 1	U = 32619.500	Z = 7.856	(e)
Test 2	U = 26521.000	Z = 3.313	(e)
Test 3	U = 39113.000	Z = 12.905	(e)
Test 4	U = 23744.500	Z = 3.954	(e)
Test 5	U = 29151.000	Z = 5.158	(e)

Two tailed

4 Science students (N₂) with Agriculture students (N₁)

Test 1	U = 11062.000	Z = 3.265	(e)
Test 2	U = 11721.000	Z = 3.781	(e)
Test 3	U = 11124.000	Z = 3.353	(e)
Test 4	U = 8764.000	Z = 0.010	
Test 5	U = 10065.500	Z = 3.437	(e)

One tailed

5 Science students (N2) with Education students (N1)

Test 1	U = 20183.000	Z = 7.901 (e)
Test 2	U = 15451.500	Z = 2.648 (c)
Test 3	U = 22865.500	Z = 10.878 (e)
Test 4	U = 15618.500	Z = 2.833 (d)
Test 5	U = 17992.000	Z = 5.468 (e)

Two tailed

6 Science students (N2) with Law students (N1)

*Test 1	U = 33940.000	Z = 10.247 (e)
-Test 2	U = 21591.500	Z = 0.262
*Test 3	U = 40283.500	Z = 15.375 (e)
-Test 4	U = 22957.500	Z = 1.367
*Test 5	U = 27674.500	Z = 5.180 (e)

*Two tailed

-One tailed

7 Arts students (N2) with Economic Sciences students (N1)

*Test 1	U = 12096.000	Z = -5.972 (e)
*Test 2	U = 15912.000	Z = -2.527 (b)
-Test 3	U = 10065.000	Z = -7.828 (e)
*Test 4	U = 15804.500	Z = -2.624 (c)
*Test 5	U = 13590.500	Z = -4.623 (e)

*Two tailed

-One tailed

8 Arts students (N2) with Agriculture students (N1)

Test 1	U = 3508.000	Z = -6.306 (e)
Test 2	U = 6638.000	Z = -1.068
Test 3	U = 2373.000	Z = -8.244 (e)
Test 4	U = 5703.000	Z = -2.632 (c)
Test 5	U = 3475.000	Z = -6.361 (e)

One tailed

9 Arts students (N2) with Education students (N1)

Test 1	U = 7875.500	Z = -3.886 (e)
Test 2	U = 9347.500	Z = -1.967 (a)
Test 3	U = 6404.500	Z = -5.824 (e)
Test 4	U = 11006.500	Z = 0.195
Test 5	U = 8324.000	Z = -3.301 (e)

One tailed

10 Arts students (N2) with Law students (N1)

Test 1	U = 13923.000	Z = -3.523 (e)
Test 2	U = 12747.500	Z = -4.627 (e)
Test 3	U = 15670.500	Z = -1.892 (a)
Test 4	U = 15553.000	Z = -1.991 (a)
Test 5	U = 12108.500	Z = -5.228 (e)

One tailed

11 Economic Sciences students (N2) with Agriculture students (N1)

Test 1	U = 4080.500	Z = -2.334 (b)
Test 2	U = 5429.500	Z = 0.745
Test 3	U = 3163.000	Z = -4.427 (e)
Test 4	U = 4813.500	Z = -0.661
Test 5	U = 3811.000	Z = -2.948 (d)

Two tailed

12 Economic Sciences students (N2) with Education students (N1)

Test 1	U = 8347.000	Z = 1.284
Test 2	U = 7700.500	Z = 0.152
Test 3	U = 8085.000	Z = 0.825
Test 4	U = 8793.000	Z = 2.066 (a)
Test 5	U = 8066.000	Z = 0.792

Two tailed

13 Economic Sciences students (N2) with Law students (N1)

Test 1	U = 14290.500	Z = -2.350 (c)
Test 2	U = 10498.500	Z = -2.346 (c)
Test 3	U = 17434.000	Z = 6.248 (e)
Test 4	U = 12741.000	Z = 0.431
Test 5	U = 12161.000	Z = -0.287

One tailed

14 Agriculture students (N1) with Education students (N2)

Test 1	U = 2086.000	Z = -3.136 (d)
Test 2	U = 3103.500	Z = 0.511
Test 3	U = 1708.000	Z = -4.490 (e)
Test 4	U = 2357.000	Z = -2.164 (a)
Test 5	U = 1965.000	Z = -3.569 (e)

Two tailed

15 Agriculture students (N1) with Law students (N2)

Test 1	U = 3157.000	Z = -3.985 (a)
Test 2	U = 5766.500	Z = 2.269 (b)
Test 3	U = 1802.000	Z = -7.239 (e)
Test 4	U = 4446.500	Z = -0.894
Test 5	U = 3570.500	Z = -2.993 (d)

One tailed

16 Education students (N1) with Law students (N2)

Test 1	U = 6750.000	Z = -0.810
Test 2	U = 8331.000	Z = 2.092 (b)
Test 3	U = 4811.500	Z = -4.372 (e)
Test 4	U = 8064.000	Z = 1.602
Test 5	U = 7800.500	Z = 1.119

One tailed

17 Science students Accepted (N2) with Science students Rejected (N1)

Test 1	U = 1628.000	Z = -1.848
Test 2	U = 1570.000	Z = -2.101 (b)
Test 3	U = 2255.000	Z = 0.916
Test 4	U = 1407.500	Z = -2.019 (a)
Test 5	U = 1586.500	Z = -2.030 (a)

One tailed

NOTEIf $z > 0$ larger group (N2) betterIf $z < 0$ larger group (N2) poorerSignificance Levels

(a)	Significance at 0.05 level	
(b)	" " 0.02 "	
(c)	" " 0.01 "	(alpha level)
(d)	" " 0.005 "	
(e)	" " 0.001 "	

SIGNIFICANCE TABLE (TWO TAILED)

Z	
0.05	1.96 - 2.31
0.02	2.32 - 2.56
0.01	2.57 - 2.80
0.005	2.81 - 3.29
0.001	3.30 - ----

SIGNIFICANCE TABLE (ONE TAILED)

Z	
0.05	1.645 - 2.04
0.02	2.05 - 2.31
0.01	2.32 - 2.66
0.005	2.67 - 3.07
0.001	3.08 - ----

TABLE 12

TABLE 12

HYPOTHESES TESTED

(N1 represents the smaller sample)
(N2 represents the larger sample)

- $H_0(1)$ There will be no significant difference between 1st year Male (N2) and Female (N1) students in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Rejected	0.001
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Rejected	0.005
(e) Spatial Ability Scale	Rejected	0.001

	Results by Faculty			
	Arts	Economic Sciences	Law	Science
(a) General Intellectual Ability	Retained	Retained	Retained	Rejected
(b) English Verbal Ability	Retained	Retained	Retained	Retained
(c) Mathematical Ability	Retained	Retained	Retained	Retained
(d) Afrikaans Verbal Ability	Retained	Retained	Retained	Retained
(e) Spatial Ability	Retained	Rejected	Retained	Rejected

- $H_0(2)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year Arts faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Rejected	0.001
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Rejected	0.001
(e) Spatial Ability Scale	Rejected	0.001

- $H_0(3)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year Economic Science faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Rejected	0.001
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Rejected	0.001
(e) Spatial Ability Scale	Rejected	0.001

- $H_0(4)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year Agriculture faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Rejected	0.001
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Retained	
(e) Spatial Ability Scale	Rejected	0.001

- $H_0(5)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year Education faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Rejected	0.01
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Rejected	0.005
(e) Spatial Ability Scale	Rejected	0.001

$H_0(6)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year Law faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Retained	
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Retained	
(e) Spatial Ability Scale	Rejected	0.001

$H_0(7)$ There will be no significant difference between 1st year Arts faculty students (N2) and 1st year Economic Science faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Retained	0.02
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Rejected	0.01
(e) Spatial Ability Scale	Rejected	0.001

$H_0(8)$ There will be no significant difference between 1st year Arts faculty students (N2) and 1st year Agriculture faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

	Result	P
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Retained	
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Rejected	0.001
(e) Spatial Ability Scale	Rejected	0.001

$H_0(9)$ There will be no significant difference between 1st year Arts faculty students (N2) and 1st year Education faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Retained	0.05
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Retained	
(e) Spatial Ability Scale	Rejected	0.001

$H_0(10)$ There will be no significant difference between 1st year Arts faculty students (N2) and 1st year Law faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Rejected	0.001
(c) Mathematical Ability Scale	Retained	0.05
(d) Afrikaans Verbal Ability Scale	Retained	0.05
(e) Spatial Ability Scale	Rejected	0.001

$H_0(11)$ There will be no significant difference between 1st year Economic Science faculty students and 1st year Agriculture faculty students in terms of scores on the following Academic Aptitude Subtests:

	Result	P
(a) General Intellectual Ability Scale	Retained	0.02
(b) English Verbal Ability Scale	Retained	
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Retained	
(e) Spatial Ability Scale	Rejected	0.005

$H_0(12)$ There will be no significant difference between 1st year Economic Science faculty students and 1st year Education faculty students in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Retained	
(b) English Verbal Ability Scale	Retained	
(c) Mathematical Ability Scale	Retained	
(d) Afrikaans Verbal Ability Scale	Retained	0.05
(e) Spatial Ability Scale	Retained	

$H_0(13)$ There will be no significant difference between 1st year Economic Science faculty students (N2) and 1st year Law faculty students (N1) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.01
(b) English Verbal Ability Scale	Rejected	0.01
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Retained	
(e) Spatial Ability Scale	Retained	

$H_0(14)$ There will be no significant difference between 1st year Agriculture faculty students and 1st year Education faculty students in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.005
(b) English Verbal Ability Scale	Retained	
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Retained	0.05
(e) Spatial Ability Scale	Rejected	0.001

$H_0(15)$ There will be no significant difference between 1st year Agriculture faculty students (N1) and 1st year Law faculty students (N2) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Rejected	0.001
(b) English Verbal Ability Scale	Retained	0.02
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Retained	
(e) Spatial Ability Scale	Rejected	0.005

$H_0(16)$ There will be no significant difference between 1st year Education faculty students (N1) and 1st year Law faculty students (N2) in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Retained	
(b) English Verbal Ability Scale	Retained	0.02
(c) Mathematical Ability Scale	Rejected	0.001
(d) Afrikaans Verbal Ability Scale	Retained	
(e) Spatial Ability Scale	Retained	

$H_0(17)$ There will be no significant difference between 1st year Science faculty students (N2) and 1st year students who were not selected for a place in the Science faculty in terms of scores on the following Academic Aptitude Subtests:

	Result	p
(a) General Intellectual Ability Scale	Retained	0.02
(b) English Verbal Ability Scale	Retained	
(c) Mathematical Ability Scale	Retained	0.05
(d) Afrikaans Verbal Ability Scale	Retained	0.05
(e) Spatial Ability Scale	Retained	

TABLE 13

SUMMARY OF HYPOTHESES

HYPOTHESES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	ALPHA = 0.01	
TEST																			
Academic Aptitude Scale	Males/Female	Science/Arts	Science/Ec. Science	Science/Agriculture	Science/Education	Science/Law	Arts/Ec. Science	Arts/Agriculture	Arts/Education	Arts/Law	Ec. Science/Agriculture	Ec. Science/Education	Ec. Science/Law	Agriculture/Education	Agriculture/Law	Education/Law	Science/Subjects	* Rejected + Retained	
General Intellectual Ability	Males Better	* Science Better	* Science Better	* Science Better	* Science Better	* Science Better	* Ec. Science Better	* Arts/Agriculture Better	* Arts/Education Better	* Arts/Law Better	* Ec. Science/Agriculture Better	* Ec. Science/Law Better	* Ec. Science/Law Better	* Agriculture/Education Better	* Agriculture/Law Better	* Education/Law Better	* Science/Subjects Better	* 13	
English Verbal Ability	Males Better	* Science Better	* Science Better	* Science Better	* Science Better	+ +	+ +	+ +	+ +	* Law Better	+ +	+ +	* Law Better	+ +	+ +	+ +	+ +	* 7	
Mathematical Ability	Males Better	* Science Better	* Science Better	* Science Better	* Science Better	* Science Better	* Ec. Science Better	* Agriculture Better	* Education Better	+ +	* Agriculture Better	+ +	* Ec. Science Better	* Agriculture Better	* Agriculture Better	* Education Better	+ +	* 14	
Afrikaans Verbal Ability	Males Better	* Science Better	* Science Better	+ +	* Science Better	+ +	* Ec. Science Better	* Agriculture Better	* +	+ +	+ +	+ +	+ +	+ +	+ +	+ +	+ +	* 6	
Spatial Ability	Males Better	* Science Better	* Science Better	* Science Better	* Science Better	* Science Better	* Ec. Science Better	* Agriculture Better	* Education Better	* Law Better	* Agriculture Better	+ +	+ +	* Agriculture Better	* Agriculture Better	+ +	+ +	* 13	
TOTAL																		* 53	
																		+ 12	

TABLE 14

FACULTY	N	Year	ENGLISH SYMBOL										SCIENCE SYMBOL														
			A	%	B	%	C	%	D	%	E	%	A	%	B	%	C	%	D	%	E	%	F	%	G	%	H
ARTS	84	1976	-	-	2	2.4	11	13.1	31	36.9	40	47.6	1	1.2	-	-	16	19	28	33.3	29	34.5	8	9.5	1	1.2	1
	77	1977	-	-	1	1.3	13	16.9	32	41.6	31	40.3	-	-	2	2.6	7	9.1	19	24.7	41	53.2	3	3.9	3	3.9	2
	(231)	70	1978	-	-	1	1.4	7	10.0	27	38.6	35	50.0	-	-	1	1.4	6	8.6	14	20.0	36	51.4	5	7.1	1	1.4
ECONOMIC SCIENCES	43	1976	-	-	-	-	7	16.3	23	53.5	13	30.2	-	-	2	4.7	6	14.0	17	39.5	14	32.6	4	9.3	-	-	-
	57	1977	-	-	1	1.8	7	12.3	24	42.1	25	43.8	-	-	4	7.0	6	10.5	13	22.8	30	52.6	3	5.3	1	1.8	-
	(162)	62	1978	-	-	1	1.6	5	8.1	23	37.1	33	53.2	-	-	-	-	5	8.1	19	30.6	24	38.7	5	8.1	3	4.8
EDUCATION	10	1976	-	-	1	10.0	1	10.0	5	50.0	3	30.0	-	-	-	-	2	20.0	3	30.0	3	30.0	2	20.0	-	-	-
	38	1977	-	-	2	5.3	5	13.2	17	44.7	14	36.8	-	-	2	5.3	3	7.9	5	13.2	20	52.6	7	18.4	1	2.6	-
	(94)	46	1978	-	-	-	-	9	19.6	16	34.8	21	45.7	-	-	1	2.2	8	17.4	13	28.3	13	28.3	2	4.3	1	2.2
AGRICULTURE	17	1976	-	-	-	-	-	11	64.7	6	35.3	-	-	-	-	6	35.3	7	41.2	3	17.6	1	5.9	-	-	-	
	18	1977	-	-	-	-	2	11.1	7	38.9	9	50.0	-	-	-	-	4	22.2	6	33.3	8	44.4	-	-	-	-	
	(63)	28	1978	-	-	1	3.6	3	10.7	9	32.1	15	53.6	1	3.6	-	-	6	21.4	12	42.9	7	25.0	1	3.6	1	3.6
LAW	34	1976	-	-	3	8.8	6	17.6	14	41.2	11	32.4	-	-	-	-	3	8.8	19	55.9	11	32.4	1	2.9	-	-	-
	71	1977	-	-	2	2.8	17	23.9	24	33.8	28	39.5	1	1.4	1	1.4	8	11.3	20	28.2	31	43.7	7	9.9	2	2.8	1
	(153)	48	1978	-	-	-	-	7	14.6	17	35.4	24	50.0	-	-	-	-	6	12.5	11	22.9	24	50.0	5	10.4	1	2.1
SCIENCE	68	1976	-	-	3	4.4	24	35.3	32	47.1	9	13.2	6	8.8	9	13.2	19	27.9	27	39.7	7	10.3	-	-	-	-	
	90	1977	1	1.1	5	5.6	21	23.3	46	51.1	17	18.9	2	2.2	6	6.7	19	21.1	36	40.0	27	30.0	-	-	-	-	
	(278)	120	1978	-	-	1	0.8	15	12.5	56	46.7	48	40.0	4	3.3	14	11.7	35	29.2	40	33.3	27	22.5	-	-	-	-
TOTAL	981		1		24		160		414		382		15		42		165		309		355		54		15		26

1. Science Symbol

The following subjects were included as a science symbol

- Physical Science
- Biology

2. Mathematics Symbol

Missing values refers to those students who did not do Mathematics for matriculation.

3. General Subject

The highest symbol of the remaining subjects was registered here.

TABLE 15

	df.	χ^2	p
General Intellectual Ability	24	42.681	0.01
English Verbal Ability	24	49.57	0.01
Mathematical Ability	24	46.38	0.01
Afrikaans Verbal Ability	24	38.68	0.05 > p > 0.02
Spatial Ability	24	45.34	0.01

TABLE 16

GENERAL INTELLECTUAL ABILITY

	Z Scores	Z < 0	0 < Z < 2	Z > 2	TOTALS
Stanines	1,2,3	5.34	0.50	0.002	5.84
	4,5,6	0.52	0.23	1.33	2.08
	7,8,9	1.54	0.12	3.9	5.56
TOTALS		7.4	0.85	5.23	13.48

4 df. $\chi^2 = 13.482$
p < 0.01

TABLE 17

ENGLISH VERBAL ABILITY

	Z Scores	Z < 0	0 < Z < 2	Z > 2	TOTALS
Stanines	1,2,3	7.2	2.48	4.68	14.36
	4,5,6	0.95	0.974	2.64	4.56
	7,8,9	2.52	0.007	7.82	10.35
TOTALS		10.67	3.46	15.14	29.27

4 df. $\chi^2 = 29.27$
p < 0.001

TABLE 18

MATHEMATICAL ABILITY

	Z Scores	Z < 0	0 < Z < 2	Z > 2	TOTALS
Stanines	1,2,3	5.14	0.47	3.7	9.31
	4,5,6	1.43	1.06	0.87	3.36
	7,8,9	4.67	1.65	3.63	9.95
TOTALS		11.24	3.18	8.2	22.62

4 df. $\chi^2 = 22.62$
p < 0.01

TABLE 19

AFRIKAANS VERBAL ABILITY

	Z Scores	Z < 0	0 < Z < 2	Z > 2	TOTALS
Stanines	1,2,3	4.11	0.28	1.2	5.59
	4,5,6	0.31	0.6	1.68	2.59
	7,8,9	1.7	0.49	1.14	3.33
		6.12	1.37	4.02	11.51

4 df. $\chi^2 = 11.51$
0.05 > p > 0.02

TABLE 20

SPATIAL ABILITY

	Z Scores	Z < 0	0 < Z < 2	Z > 2	TOTALS
Stanines	1,2,3	6.63	0.81	2.81	10.25
	4,5,6	0.85	2.89	2.59	6.33
	7,8,9	4.36	1.57	2.58	8.51
		11.84	5.27	7.98	25.09

4 df. $\chi^2 = 25.09$
p < 0.01

TABLE 21

Variable	Result	FACULTY					
		Arts	Econ. Sci.	Educ.	Agric.	Law	Science
General	Chi Square	75.620	111.524	86.397	77.456	74.582	156.599
Intell. Ability	df	32	28	28	24	28	24
	p	0.000	0.000	0.000	0.000	0.000	0.000
English Verbal Ability	Chi Square	91.176	50.080	80.516	30.472	73.439	120.497
	df	32	28	28	28	32	32
	p	0.000	0.006	0.000	0.341 ¹	0.000	0.000
Maths. Ability	Chi Square	75.677	80.963	57.540	49.087	95.797	88.282
	df	24	32	24	32	24	28
	p	0.000	0.000	0.000	0.027	0.000	0.000
Afrik. Verbal Ability	Chi Square	73.570	63.957	51.922	28.823	60.988	78.651
	df	28	32	32	28	32	32
	p	0.000	0.001	0.014	0.421 ²	0.001	0.000
Spatial Ability	Chi Square	40.575	79.446	43.217	32.843	53.258	82.518
	df	28	28	32	32	28	28
	p	0.059 ⁵	0.000	0.089 ⁴	0.425 ³	0.002	0.000

Alpha level = 0.01

On reducing the table size, and hence the degrees of freedom, to avoid any blank cells the following results were obtained:

1. Agriculture students on English Verbal Ability Tests:
 $\chi^2 = 12.74$ df = 6, $0.05 > p > 0.02$
2. Agriculture students on Afrikaans Verbal Ability Tests:
 $\chi^2 = 8.39$ df = 2, $0.05 > p > 0.02$
3. Agriculture students on Spatial Ability Tests:
 $\chi^2 = 21.61$ df = 2, $p < 0.001$
4. Education students on Spatial Ability Tests:
 $\chi^2 = 10.50$ df = 2, $p < 0.01$
5. Arts students on Spatial Ability Tests:
 $\chi^2 = 27.24$ df = 2, $p < 0.001$

In cases 2, 3 & 4 a pass/fail dichotomy was used in a 3 x 2 table.

TABLE 22

Variable	Result	Faculty					
		Arts	Econ. Sci.	Educ.	Agric.	Law	Science
Matric. English Symbol	Chi Square	16.149	17.822	40.544	23.856	34.124	50.432
	df	8	8	16	16	16	20
	p	.05 > p > .02	.05 > p > .02	p < .01	p = 0.093	p < .01	p < .01
Matric. Science Symbol	Chi Square	37.779	32.523	23.126	19.277	32.233	54.646
	df	32	24	20	20	28	28
	p	p = 0.222	p = 0.115	p = 0.283	p = 0.504	p = 0.265	p < .01
Matric. General Symbol	Chi Square	27.604	28.408	8.251	8.790	26.123	19.441
	df	24	24	3	3	20	20
	p	p = 0.277	p = 0.243	.05 > p > .02	.05 > p > .02	p = 0.162	p = 0.493
Matric. Maths. Symbol	Chi Square	31.121	29.434	30.440	25.227	27.398	53.674
	df	20	24	20	24	24	24
	p	p = 0.054	p = 0.204	p = 0.063	p = 0.393	p = 0.286	p < .01
Matric. Aggreg. Symbol	Chi Square	17.661	13.201	16.390	28.113	13.399	57.281
	df	20	12	8	12	12	16
	p	p = 0.610	p = 0.355	.05 > p > .02	p < 0.01	p = 0.341	p < .01

TABLE 23

NORMS FOR THE ACADEMIC APTITUDE TEST

STANINE	9	8	7	6	5	4	3	2	1
General									
Intellectual Ability	61-52	51-46	45-40	39-35	34-29	28-24	23-18	17-12	11-0
Verbal Ability English	60-47	46-42	41-37	36-32	31-27	26-22	21-17	16-12	11-0
Verbal Ability Afrikaans	60-47	46-42	41-37	36-32	31-27	26-22	21-17	16-12	11-0
Spatial Ability	60-45	44-40	39-35	34-30	29-25	24-20	19-15	14-10	9-0
Mathematical Ability	60-47	46-41	40-36	35-30	29-22	21-17	16-12	11-09	8-0

MALES: NORMS FOR THE ACADEMIC APTITUDE TEST

STANINE	9	8	7	6	5	4	3	2	1
General									
Intellectual Ability	61-53	52-48	47-41	40-36	35-30	29-24	23-18	17-12	11-0
Verbal Ability English	60-50	49-44	43-38	37-33	32-28	27-23	22-17	16-12	11-0
Verbal Ability Afrikaans	60-51	50-45	44-40	39-34	33-29	28-24	23-18	17-13	12-0
Spatial Ability	60-47	46-42	41-37	36-32	31-27	26-22	21-17	16-12	11-0
Mathematical Ability	60-47	46-41	40-36	35-30	29-22	21-17	16-12	11-09	8-0

FEMALES: NORMS FOR THE ACADEMIC APTITUDE TEST

STANINE	9	8	7	6	5	4	3	2	1
General									
Intellectual Ability	61-47	46-42	41-37	36-32	31-27	26-22	21-17	16-12	11-0
Verbal Ability English	60-45	44-40	39-35	34-30	29-26	25-21	20-16	15-11	10-0
Verbal Ability Afrikaans	60-44	43-39	38-34	33-29	28-24	23-19	18-14	13-09	8-0
Spatial Ability	60-42	41-37	36-32	31-28	27-23	22-18	17-14	13-09	8-0
Mathematical Ability	60-46	45-40	39-35	34-29	28-23	22-18	17-14	13-10	9-0

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES AND MATRICULATION RESULTS

SUMMARY TABLE

STEP NUMBER	VARIABLE ENTERED	REMOVED	F TO ENTER OR REMOVE	NUMBER INCLUDED	WILKS' LAMBDA	SIG	RAO'S V	CHANGE IN RAO'S V	SIG OF CHANGE
1	AGEN		163.02325	1	.59972	.000	652.09311	652.09311	.000
2	AENG		35.41782	2	.52370	.000	887.91679	235.82368	.000
3	AAFR		7.50476	3	.50806	.000	939.92709	52.01030	.000
4	MGEN		5.59623	4	.49665	.000	971.71731	31.79021	.000
5	ASPAT		6.35713	5	.48400	.000	1020.19578	48.47847	.000
6	MSCI		2.93669	6	.47822	.000	1041.73941	21.54364	.000
7	MENG		3.11682	7	.47216	.000	1055.35144	13.61203	.009
8	MMATH		2.16922	8	.46797	.000	1069.91394	14.56250	.006
9	AMATH		3.01275	9	.46222	.000	1086.62167	16.70773	.002

CLASSIFICATION FUNCTION COEFFICIENTS

	GROUP 0	GROUP 1	GROUP 2	GROUP 3	GROUP 4
MENG	5.09865	4.98022	5.42287	5.37981	5.16433
MSCI	1.95745	1.90539	1.84731	1.70503	1.77524
MGEN	6.48027	6.58342	6.24829	5.96978	6.15991
MMATH	-.21916	-.22579	-.38713	-.26863	-.46424
AGEN	2.07445	1.68704	1.48317	1.31738	.86567
AENG	1.70866	1.40350	1.21060	1.09635	.95392
AMATH	-.34225	-.43278	-.23162	-.34613	-.13001
AAFR	.22362	.18259	.14781	-.01511	-.14523
ASPAT	2.48229	2.37422	2.37413	2.16461	2.07238
CONSTANT	-61.40798	-55.71015	-53.72694	-47.87831	-45.07934

A	DISCRIMINANT FUNCTION	EIGENVALUE	RELATIVE PERCENTAGE	CANONICAL CORRELATION	FUNCTIONS DERIVED	WILKS' LAMBDA	CHI-SQUARE	DF	SIGNIFICANCE
	1	1.06537	95.79	.718	0	.4622	751.649	36	.000
	2	.02488	2.24	.156	1	.9547	45.197	24	.006
	3	.01283	1.15	.113	2	.9784	21.261	14	.095
	4	.00912	.82	.095	3	.9910	8.844	6	.183

REMAINING COMPUTATIONS WILL BE BASED ON 4 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1	FUNC 2	FUNC 3	FUNC 4
MENG	.03003	.72881	.43676	.02090
MSCI	-.08153	-.37073	.20233	-.19739
MGEN	-.10382	-.79408	.18729	.21541
MMATH	-.18310	.26123	-1.13918	1.06712
AGEN	-.55704	.21676	-.37609	.33213
AENG	-.34781	-.33405	-.44796	-.51346
AMATH	.13060	-.16407	.79386	-1.59790
AAFR	-.18887	.02028	.43562	.60373
ASPAT	-.18272	-.03866	.47536	.16401

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1	FUNC 2	FUNC 3	FUNC 4
MENG	.03339	.81031	.48560	.02324
MSCI	-.05497	-.24994	.13641	-.13308
MGEN	-.10753	-.82241	.19397	.22310
MMATH	-.05995	.08553	-.37298	.34939
AGEN	-.31278	.12394	-.21504	.18991
AENG	-.19964	-.19174	-.25712	-.29472
AMATH	.05328	.06693	.32384	-.65183
AAFR	-.09969	.01071	.22994	.31867
ASPAT	-.11113	-.02351	.28913	.09975
CONSTANT	4.37859	2.42404	-4.69740	-.73432

B CENTROIDS OF GROUPS IN REDUCED SPACE

	FUNC 1	FUNC 2	FUNC 3	FUNC 4
GROUP 0	-.94080	-.01121	-.03914	-.08030
GROUP 1	-.30448	-.22456	-.02300	.19463
GROUP 2	-.06014	.13083	.25419	.02960
GROUP 3	.36676	.27070	-.13160	.06885
GROUP 4	.91158	-.10624	-.00495	-.06746

C PREDICTION RESULTS -

ACTUAL GROUP	NO. OF CASES	PREDICTED GROUP MEMBERSHIP				
		GP. 0	GP. 1	GP. 2	GP. 3	GP. 4
GROUP 0	276.	192. 69.6%	42. 15.2%	23. 8.3%	7. 2.5%	12. 4.3%
GROUP 1	131.	40. 30.5%	36. 27.5%	18. 13.7%	17. 13.0%	20. 15.3%
GROUP 2	142.	19. 13.4%	31. 21.8%	52. 36.6%	22. 15.5%	18. 12.7%
GROUP 3	159.	8. 5.0%	27. 17.0%	27. 17.0%	57. 35.8%	40. 25.2%
GROUP 4	274.	1. .4%	19. 6.9%	18. 6.6%	58. 21.2%	178. 65.0%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 52.44%

TABLE 25

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES AND MATRICULATION RESULTS: ENTIRE POPULATIONGROUP COUNTS

	<u>GROUP 1</u>	<u>GROUP 2</u>	<u>TOTAL</u>
COUNT	548.0000	433.0000	= 981.0000

F FOR INCLUSION 1.00000
 F FOR DELETION 1.00000
 TOLERANCE LEVEL .00100
 MAXIMUM STEPS 28

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results.

PRIOR PROBABILITIES

<u>GROUP 1</u>	<u>GROUP 2</u>
.50000	.50000

F LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

F MATRIX - DEGREES OF FREEDOM: 6,974

<u>GROUP 1</u>
107.65436

GROUP 2

VARIABLES IN THE ANALYSIS

<u>VARIABLE</u>	<u>ENTRY CRITERION</u>	<u>F TO REMOVE</u>
MGEN	2.89379	2.89380
AGEN	261.14991	41.60959
AENG	55.47699	33.29010
AMATH	19.02945	11.87985
AAFR	3.78273	3.40340
ASPAT	8.41918	8.85271

VARIABLES NOT IN THE ANALYSIS

MMATH: Matriculation Mathematics Symbol
 MENG : Matriculation English Symbol
 MSCI : Matriculation Science Symbol
 MAGG : Matriculation Aggregate Symbol

CLASSIFICATION FUNCTION COEFFICIENTS

	<u>GROUP 1</u>	<u>GROUP 2</u>
MGEN	9.14452	8.90164
AGEN	.35910	.24437
AENG	.21154	.13329
AMATH	.04899	-.00113
AAFR	.08857	.06434
ASPAT	.21175	.17344
CONSTANT	-45.71707	-35.41072

<u>DISCRIMINANT FUNCTION</u>	<u>EIGENVALUE</u>	<u>RELATIVE PERCENTAGE</u>	<u>CANONICAL CORRELATION</u>	<u>FUNCTIONS DERIVED</u>	<u>WILKS' LAMBDA</u>	<u>CHI-SQUARE</u>	<u>DF</u>	<u>SIGNIFICANCE</u>
1	.70957	100.00	.644	0	.5849	299.758	6	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
MGEN	-.08794
AGEN	-.46232
AENG	-.36944
AMATH	-.21325
AAFR	-.11115
ASPAT	-.18390

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
MGEN	-.10322
AGEN	-.04876
AENG	-.03326
AMATH	-.02130
AAFR	-.01030
ASPAT	-.01628
CONSTANT	4.63700

GENTROIDS OF GROUPS IN REDUCED SPACE

	<u>FUNC 1</u>
GROUP 1	.44249
GROUP 2	.93633

PREDICTION RESULTS -

<u>ACTUAL GROUPS</u>	<u>NO. OF CASES</u>	<u>PREDICTED GROUP MEMBERSHIP</u>	
		<u>GP 1</u>	<u>GP 2</u>
GROUP 1	548.	430. 78.5%	118. 21.5%
GROUP 2	433.	56. 12.9%	377. 87.1%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 82.26%

T A B L E 26

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES AND MATRICULATION RESULTS: FACULTIES OF ART AND EDUCATION

GROUP COUNTS

	<u>GROUP 1</u>	<u>GROUP 2</u>	<u>TOTAL</u>
COUNT	140.0000	185.0000	325.0000
F FOR INCLUSION	1.00000		
F FOR DELETION	1.00000		
TOLERANCE LEVEL	.00100		
MAXIMUM STEPS	28		

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA

NOTE: The entry criteria currently being printed are (usable) Intermediate results.

PRIOR PROBABILITIES

<u>GROUP 1</u>	<u>GROUP 2</u>
.50000	.50000

F LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

F MATRIX - DEGREES OF FREEDOM: 4,320

<u>GROUP 1</u>	<u>GROUP 2</u>
	14.72844

VARIABLES IN ANALYSIS

<u>VARIABLE</u>	<u>ENTRY CRITERION</u>	<u>F TO REMOVE</u>
AGEN	43.96204	10.09450
AENG	5.20067	2.00890
AMATH	4.74651	4.71884
AAFR	1.09273	1.09273

VARIABLES NOT IN ANALYSIS

MAGG: Matriculation Aggregate Symbol
 MENG: Matriculation English Symbol
 MSCI: Matriculation Science Symbol
 MMATH: Matriculation Mathematics Symbol
 MGEN: Matriculation General Subject Symbol
 ASPAT: Aptitude Spatial Test Score

CLASSIFICATION FUNCTION COEFFICIENTS

	<u>GROUP 1</u>	<u>GROUP 2</u>
AGEN	.42271	.29955
AENG	.08877	.03657
AMATH	.36166	.28433
AAFR	.16121	.12941
CONSTANT	-15.46867	-8.02464

<u>DISCRIMINANT FUNCTION</u>	<u>EIGENVALUE</u>	<u>RELATIVE PERCENTAGE</u>	<u>CANONICAL CORRELATION</u>	<u>FUNCTIONS DERIVED</u>	<u>WILKS' LAMBDA</u>	<u>CHI-SQUARE</u>	<u>DF</u>	<u>SIGNIFICANCE</u>
1	.62014	100.00	.619	0	.6172	46.321	4	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
AGEN	-.55652
AENG	-.27783
AMATH	-.30907
AAFR	-.17064

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
AGEN	-.06112
AENG	-.02591
AMATH	-.03837
AAFR	-.01578
CONSTANT	3.81953

CENTROIDS OF GROUPS IN REDUCED SPACE

	<u>FUNC 1</u>
GROUP 1	-.50262
GROUP 2	.75393

PREDICTION RESULTS -

<u>ACTUAL GROUP</u>	<u>NO OF CASES</u>	<u>PREDICTED GROUP MEMBERSHIP</u>	
		<u>GP 1</u>	<u>GP 2</u>
GROUP 1	140.	117. 83.6%	23. 16.4%
GROUP 2	185.	23. 12.4%	162. 87.6%

PERCENTAGE OF "GROUPED" CASES CORRECTLY CLASSIFIED: 85.8%

TABLE 27

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES AND MATRICULATION RESULTS : FACULTY OF ECONOMIC SCIENCES

GROUP COUNTS

	<u>GROUP 1</u>	<u>GROUP 2</u>	<u>TOTAL</u>
COUNT	96	66	162
F FOR INCLUSION	1.00000		
F FOR DELETION	1.00000		
TOLERANCE LEVEL	.00100		
MAXIMUM STEPS	28		

SOLUTION METHOD -STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results

PRIOR PROBABILITIES -

<u>GROUP 1</u>	<u>GROUP 2</u>
.50000	.50000

F LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

F MATRIX - DEGREES OF FREEDOM: 5,156

<u>GROUP 2</u>	<u>GROUP 1</u>
	20.88164

VARIABLES IN THE ANALYSIS

<u>VARIABLE</u>	<u>ENTRY CRITERION</u>	<u>F TO REMOVE</u>
MSCI	2.08677	2.08677
AGEN	54.57097	12.40362
AENG	11.69832	9.94404
AMATH	7.64128	6.90114
AAFR	3.03565	3.07291

VARIABLES NOT IN THE ANALYSIS

MAGG: Matriculation Aggregate Symbol
 MENG: Matriculation English Symbol
 MMATH: Matriculation Mathematics Symbol
 MGEN: Matriculation General Subject Symbol
 ASPAT: Aptitude Spatial Test Score

CLASSIFICATION FUNCTION COEFFICIENTS

	<u>GROUP 1</u>	<u>GROUP 2</u>
MSCI	2.27758	2.00040
AGEN	.39223	.24763
AENG	.44971	.32858
AMATH	.35704	.24338
AAFR	.25440	.19009
CONSTANT	-28.23281	-15.33023

<u>DISCRIMINANT FUNCTION</u>	<u>EIGENVALUE</u>	<u>RELATIVE PERCENTAGE</u>	<u>CANONICAL CORRELATION</u>	<u>FUNCTIONS DERIVED</u>	<u>WILKS' LAMBDA</u>	<u>CHI-SQUARE</u>	<u>DF</u>	<u>SIGNIFICANCE</u>
1	1.06499	100.00	.718	0	.4843	64.899	5	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
MSCI	-.15022
AGEN	-.47280
AENG	-.36533
AMATH	-.33475
AAFR	-.19826

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
MSCI	-.09127
AGEN	-.04762
AENG	-.03989
AMATH	-.03743
AAFR	-.02117
CONSTANT	4.45424

CENTROIDS OF GROUPS IN REDUCED SPACE

	<u>FUNC 1</u>
GROUP 1	-.53772
GROUP 2	.94892

PREDICTION RESULTS -

<u>ACTUAL GROUP</u>	<u>NO. OF CASES</u>	<u>PREDICTED GROUP MEMBERSHIP</u>	
		<u>GP. 1</u>	<u>GP. 2</u>
GROUP 1	96.	85. 88.5%	11. 11.5%
GROUP 2	66	6 9.0%	60 90.9%

PERCENT OF GROUPED CASES CORRECTLY CLASSIFIED: 89.51%

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES AND MATRICULATION RESULTS: FACULTY OF LAWGROUP COUNTS

	<u>GROUP 1</u>	<u>GROUP 2</u>	<u>TOTAL</u>
COUNT	70.0000	83.0000	153.0000

F FOR INCLUSION 1.00000
 F FOR DELETION 1.00000
 TOLERANCE LEVEL .00100
 MAXIMUM STEPS 28

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA.

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results.

PRIOR PROBABILITIES -

<u>GROUP 1</u>	<u>GROUP 2</u>
.50000	.50000

F LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

F MATRIX - DEGREES OF FREEDOM: 8,144

<u>GROUP 2</u>	<u>GROUP 1</u>
	15.71870

VARIABLES IN THE ANALYSIS

<u>VARIABLE</u>	<u>ENTRY CRITERION</u>	<u>F TO REMOVE</u>
MENG	5.89086	10.45241
MGEN	3.46187	3.13393
MAGG	1.85916	4.18445
AGEN	27.35553	11.50530
AENG	60.87385	28.02055
AMATH	1.74527	1.74527
AAFR	2.75198	4.23130
ASPAT	2.36426	3.47395

VARIABLES NOT IN THE ANALYSIS

MSCI: Matriculation Science Symbol
 MMATH: Matriculation Mathematics Symbol

CLASSIFICATION FUNCTION COEFFICIENTS

	<u>GROUP 1</u>	<u>GROUP 2</u>
MENG	3.23110	2.54391
MGEN	5.93873	5.48535
MAGG	8.98019	9.85217
AGEN	.39865	.27222
AENG	.28061	.15632
AMATH	.03402	.07299
AAFR	.21651	.16332
ASPAT	.20742	.15491
CONSTANT	-71.14291	-60.11519

<u>DISCRIMINANT FUNCTION</u>	<u>EIGENVALUE</u>	<u>RELATIVE PERCENTAGE</u>	<u>CANONICAL CORRELATION</u>	<u>FUNCTIONS DERIVED</u>	<u>WILKS' LAMBDA</u>	<u>CHI-SQUARE</u>	<u>DF</u>	<u>SIGNIFICANCE</u>
1	.87326	100.00	.683	0	.5338	92.269	8	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
MENG	-.32357
MGEN	-.16891
MAGG	.21306
AGEN	-.43217
AENG	-.58182
AMATH	.14528
AAFR	-.23190
ASPAT	-.20195

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
MENG	-.27033
MGEN	-.17835
MAGG	.34302
AGEN	-.04973
AENG	-.04890
AMATH	.01533
AAFR	-.02092
ASPAT	-.02066
CONSTANT	4.28009

CENTROIDS OF GROUPS IN REDUCED SPACE

	<u>FUNC 1</u>
GROUP 1	-.74104
GROUP 2	.62497

PREDICTION RESULTS -

<u>ACTUAL GROUP</u>	<u>NO OF CASES</u>	<u>PREDICTED GROUP MEMBERSHIP</u>	
		<u>GP 1</u>	<u>GP 2</u>
GROUP 1	70.	59. 84.3%	11. 15.7%
GROUP 2	83.	12. 14.5%	71. 85.5%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 84.97%

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES AND MATRICULATION RESULTS: FACULTIES OF SCIENCE AND AGRICULTURE

GROUP COUNTS

	<u>GROUP 1</u>	<u>GROUP 2</u>	<u>TOTAL</u>
COUNT	243.0000	98.0000	341.0000

F FOR INCLUSION 1.00000
 F FOR DELETION 1.00000
 TOLERANCE LEVEL .00100
 MAXIMUM STEPS 28

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA.

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results.

PRIOR PROBABILITIES -

<u>GROUP 1</u>	<u>GROUP 2</u>
.50000	.50000

F LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

F MATRIX - DEGREES OF FREEDOM: 8,332

	<u>GROUP 1</u>
<u>GROUP 2</u>	31.82360

<u>VARIABLE</u>	<u>VARIABLES IN THE ANALYSIS</u>	
	<u>ENTRY CRITERION</u>	<u>F TO REMOVE</u>
MENG	2.10407	1.41081
MSCI	3.61946	2.58678
MMATH	4.41843	4.55861
AGEN	162.34464	26.86556
AENG	27.56689	12.78657
AMATH	15.04269	1.68871
AAFR	1.37190	1.37190
ASPAT	7.30852	8.78118

VARIABLES NOT IN THE ANALYSIS

MAGG: Matriculation Aggregate Symbol
 MGEN: Matriculation General Subject Symbol

CLASSIFICATION FUNCTION COEFFICIENTS

	<u>GROUP 1</u>	<u>GROUP 2</u>
MENG	7.82249	7.55832
MSCI	9.41866	9.08681
MMATH	1.91400	1.66601
AGEN	.40132	.27608
AENG	.07862	.01132
AMATH	-.23724	-.26794
AAFR	-.05834	-.07898
ASPAT	.31982	.26946
CONSTANT	-70.94950	-56.97885

<u>DISCRIMINANT FUNCTION</u>	<u>EIGENVALUE</u>	<u>RELATIVE PERCENTAGE</u>	<u>CANONICAL CORRLLATION</u>	<u>FUNCTIONS DERIVED</u>	<u>WILKS' LAMBDA</u>	<u>CHI-SQUARE</u>	<u>DF</u>	<u>SIGNIFICANCE</u>
1	.76683	100.00	.659	0	.5660	190.678	8	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
MENG	-.08826
MSCI	-.10576
MMATH	-.17403
AGEN	-.45083
AENG	-.29352
AMATH	-.12153
AAFR	-.08971
ASPAT	-.22196

UNSTANDARDIZED DISCRIMINANT FUNTION COEFFICIENTS

	<u>FUNC 1</u>
MENG	-.10316
MSCI	-.12959
MMATH	-.09684
AGEN	-.04891
AENG	-.02628
AMATH	-.01199
AAFR	-.00806
ASPAT	-.01967
CONSTANT	5.76471

CENTROIDS OF GROUPS IN REDUCED SPACE

	<u>FUNC 1</u>
GROUP 1	-.41776
GROUP 2	1.03587

PREDICTION RESULTS -

<u>ACTUAL GROUP</u>	<u>NO OF CASES</u>	<u>PREDICTED GROUP MEMBERSHIP</u>	
		<u>GP 1</u>	<u>GP 2</u>
GROUP 1	243.	201. 82.7%	42. 17.3%
GROUP 2	98.	12. 12.2%	86. 87.8%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 84.16%

TABLE 31

DISCRIMINANT ANALYSIS: FIRST YEAR MATRICULATION RESULTS: ENTIRE POPULATION

GROUP COUNTS

	GROUP 1	GROUP 2	TOTAL
COUNT	548.0000	433.0000	981.0000
F FOR INCLUSION	1.00000		
F FOR DELETION	1.00000		
TOLERANCE LEVEL	.00100		
MAXIMUM STEPS	28		

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results

PRIOR PROBABILITIES -

GROUP 1	GROUP 2
.50000	.50000

F LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

F MATRIX - DEGREES OF FREEDOM: 4,976

GROUP 2	GROUP 1
	46.04059

VARIABLE	VARIABLES IN THE ANALYSIS	
	ENTRY CRITERION	F TO REMOVE
MENG	45.72980	33.66467
MSCI	11.29032	9.87774
MGEN	4.96720	4.96721
MMATH	114.48715	73.44202

VARIABLES NOT IN THE ANALYSIS

MAGG: Matriculation Aggregate Symbol

CLASSIFICATION FUNCTION COEFFICIENTS

	GROUP 1	GROUP 2
MENG	6.25470	5.78608
MSCI	1.93250	1.77488
MGEN	5.79307	5.62604
MMATH	.04863	-.15870
CONSTANT	-43.47418	-38.18065

DISCRIMINANT FUNCTION	EIGENVALUE	RELATIVE PERCENTAGE	CANONICAL CORRELATION	:	FUNCTIONS DERIVED	WILKS' LAMBDA	CHI-SQUARE	DF	SIGNIFICANCE
1	.18850	100.00	.398	:	0	.8414	168.891	4	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
MENG	-.44281
MSCI	-.24562
MGEN	-.16944
MMATH	-.66526

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
MENG	-.49233
MSCI	-.16559
MGEN	-.17548
MMATH	-.21782
CONSTANT	5.60865

CENTROIDS OF GROUPS IN REDUCED SPACE

	FUNC 1
GROUP 1	-.35350
GROUP 2	.44820

PREDICTION RESULTS

ACTUAL GROUP	NO OF CASES	PREDICTED GROUP GP 1	MEMBERSHIP GP 2
GROUP 1	548	357 65.1%	191 34.9%
GROUP 2	433	138 31.9%	295 68.1%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 66.46%

TABLE 32

DISCRIMINANT ANALYSIS: FIRST YEAR MATRICULATION RESULTS: FACULTIES OF ARTS AND EDUCATIONGROUP COUNTS

	<u>GROUP 1</u>	<u>GROUP 2</u>	<u>TOTAL</u>
COUNT	140.0000	186.0000	326.0000
F FOR INCLUSION	1.00000		
F FOR DELETION	1.00000		
TOLERANCE LEVEL	.00100		
MAXIMUM STEPS	28		

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results

PRIOR PROBABILITIES -

<u>GROUP 1</u>	<u>GROUP 2</u>
.50000	.50000

ALL ELIGIBLE VARIABLES INCLUDED

F MATRIX - DEGREES OF FREEDOM: 5,320

	<u>GROUP 1</u>
<u>GROUP 2</u>	5.95853

<u>VARIABLE</u>	<u>VARIABLES IN ANALYSIS</u>		<u>VARIABLES NOT IN ANALYSIS</u>
	<u>ENTRY CRITERION</u>	<u>F TO REMOVE</u>	
MENG	2.14708	3.85127	
MSCI	3.60977	4.51324	
MGEN	1.19971	3.57676	
MMATH	18.12785	14.75904	
MAGG	1.83628	4.21604	

CLASSIFICATION FUNCTION COEFFICIENTS

	<u>GROUP 1</u>	<u>GROUP 2</u>
MENG	2.84961	2.56294
MSCI	.71912	.55346
MGEN	2.94339	2.70521
MMATH	.19299	.00664
MAGG	4.79665	5.23719
CONSTANT	-33.53434	-31.71371

<u>DISCRIMINANT FUNCTIONS</u>	<u>EIGENVALUE</u>	<u>RELATIVE PERCENTAGE</u>	<u>CANONICAL CORRELATION</u>	<u>FUNCTIONS DERIVED</u>	<u>WILKS' LAMBDA</u>	<u>CHI-SQUARE</u>	<u>DF</u>	<u>SIGNIFICANCE</u>
1	.09310	100.00	.292	0	.9148	28.620	5	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
MENG	-.43491
MSCI	-.42110
MGEN	-.40425
MMATH	-.71372
MAGG	.53156

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
MENG	-.44688
MSCI	-.25823
MGEN	-.37127
MMATH	-.29049
MAGG	.68673
CONSTANT	2.79650

CENTROIDS OF GROUPS IN REDUCED SPACE

	<u>FUNC 1</u>
GROUP 1	-.33587
GROUP 2	.25281

PREDICTION RESULTS -

<u>ACTUAL GROUP</u>	<u>NO. OF CASES</u>	<u>PREDICTED GROUP MEMBERSHIP</u>	
		<u>GP 1</u>	<u>GP 2</u>
GROUP 1	140.	68. 48.6%	72. 51.4%
GROUP 2	186.	60. 32.3%	126. 67.7%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 59.51%

T A B L E 33

DISCRIMINANT ANALYSIS: FIRST YEAR MATRICULATION RESULTS: FACULTY OF ECONOMIC SCIENCES

GROUP COUNTS

	GROUP 1	GROUP 2	TOTAL
COUNT	96.0000	66.0000	162.0000
F FOR INCLUSION	1.00000		
F FOR DELETION	1.00000		
TOLERANCE LEVEL	.00100		
MAXIMUM STEPS	28		

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results

PRIOR PROBABILITIES -

GROUP 1	GROUP 2
.50000	.50000

ALL ELIGIBLE VARIABLES INCLUDED

F MATRIX - DEGREES OF FREEDOM: 5,156

	GROUP 1
GROUP 2	5.36981

VARIABLES IN THE ANALYSIS.

VARIABLE	ENTRY CRITERION	F TO REMOVE
MENG	12.07320	9.04698
MSCI	2.50703	2.37757
MGEN	1.28536	1.16455
MMATH	5.68780	5.47278
MAGG	4.42661	2.04786

VARIABLES NOT IN THE ANALYSIS

CLASSIFICATION FUNCTION COEFFICIENTS

	GROUP 1	GROUP 2
MENG	8.86158	8.17309
MSCI	1.41467	1.23720
MGEN	5.52490	5.32202
MMATH	.82678	.67685
MAGG	5.70020	5.34651
CONSTANT	-65.18796	-56.75574

DISCRIMINANT FUNCTION	EIGENVALUE	RELATIVE PERCENTAGE	CANONICAL CORRELATION	FUNCTIONS DERIVED	WILKS' LAMBDA	CHI-SQUARE	DF	SIGNIFICANCE
1	.17211	100.00	.383	0	.8532	25.012	5	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
MENG	-.60014
MSCI	-.30405
MGEN	-.21910
MMATH	-.45713
MAGG	-.30233

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
MENG	-.70625
MSCI	-.19596
MGEN	-.22402
MMATH	-.16556
MAGG	-.39055
CONSTANT	9.38304

CENTROIDS OF GROUPS IN REDUCED SPACE

	FUNC 1
GROUP 1	-.31675
GROUP 2	.46072

PREDICTION RESULTS -

ACTUAL GROUP	NO. OF CASES	PREDICTED GROUP MEMBERSHIP	
		GP 1	GP 2
GROUP 1	96.	62. 64.6%	34. 35.4%
GROUP 2	66	21. 31.8%	45. 68.2%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 66.05%

DISCRIMINANT ANALYSIS: FIRST YEAR MATRICULATION RESULTS: FACULTY OF LAWGROUP COUNTS

	<u>GROUP 1</u>	<u>GROUP 2</u>	<u>TOTAL</u>
COUNT	70.0000	83.0000	153.0000

F FOR INCLUSION 1.00000

F FOR DELETION 1.00000

TOLERANCE LEVEL .00100

MAXIMUM STEPS 28

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results.

PRIOR PROBABILITIES -

<u>GROUP 1</u>	<u>GROUP 2</u>
.50000	.50000

F LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

F MATRIX - DEGREES OF FREEDOM: 3,149

	<u>GROUP 1</u>
<u>GROUP 2</u>	4.84636

VARIABLES IN THE ANALYSIS

<u>VARIABLE</u>	<u>ENTRY CRITERION</u>	<u>F TO REMOVE</u>
MENG	10.66200	13.00731
MSCI	2.68779	3.68801
MAGG	1.06435	1.06435

VARIABLES NOT IN THE ANALYSIS

MGEN: Matriculatio General Subject Symbol

CLASSIFICATION FUNCTION COEFFICIENTS

	<u>GROUP 1</u>	<u>GROUP 2</u>
MENG	6.57041	5.79833
MSCI	3.02592	2.72127
MAGG	9.76767	10.09917
CONSTANT	-56.08338	-51.80813

<u>DISCRIMINANT FUNCTION</u>	<u>EIGENVALUE</u>	<u>RELATIVE PERCENTAGE</u>	<u>CANONICAL CORRELATION</u>	<u>FUNCTIONS DERIVED</u>	<u>WILKS' LAMBDA</u>	<u>CHI-SQUARE</u>	<u>DF</u>	<u>SIGNIFICANCE</u>
1	.09758	100.00	.298	0	.9111	13.919	3	.003

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

<u>C</u>	<u>FUNC 1</u>
MENG	-1.05572
MSCI	-.56062
MAGG	.31656

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
MENG	-1.18701
MSCI	-.46837
MAGG	.50965
CONSTANT	6.54756

CENTROIDS OF GROUPS IN REDUCED SPACE

	<u>FUNC 1</u>
GROUP 1	-.32361
GROUP 2	.27293

PREDICTION RESULTS -

<u>ACTUAL GROUP</u>	<u>NO. OF CASES</u>	<u>PREDICTED GROUP MEMBERSHIP</u>	
		<u>GP. 1</u>	<u>GP. 2</u>
GROUP 1	70.	41. 58.6%	29. 41.4%
GROUP 2	83.	29. 34.9%	54. 65.1%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 62.09%

TABLE 35

DISCRIMINANT ANALYSIS: FIRST YEAR MATRICULATION RESULTS: FACULTIES OF SCIENCE AND AGRICULTURE

GROUP COUNTS

	GROUP 1	GROUP 2	TOTAL
COUNT	243.0000	98.0000	341.0000

F FOR INCLUSION 1.00000

F FOR DELETION 1.00000

TOLERANCE LEVEL .00100

MAXIMUM STEPS 28

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA.

NOTE: The Entry Criteria currently being printed are (usable) Intermediate Results

PRIOR PROBABILITIES -

GROUP 1	GROUP 2
.50000	.50000

F LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

F MATRIX - DEGREES OF FREEDOM: 4, 336

GROUP 2	GROUP 1
	22.12261

VARIABLES IN ANALYSIS

VARIABLE	ENTRY CRITERION	F TO REMOVE
MENG	14.55148	13.81840
MSCI	1.00859	1.00859
MMATH	13.45847	17.07161
MAGG	54.64991	5.78779

VARIABLES NOT IN ANALYSIS

MGEN: Matriculation General Subject Symbol

CLASSIFICATION FUNCTION COEFFICIENTS

	GROUP 1	GROUP 2
MENG	4.77186	4.11771
MSCI	7.15194	6.97667
MMATH	-.16665	-.52892
MAGG	12.91364	12.24450
CONSTANT	-77.52826	-66.59405

DISCRIMINANT FUNCTION	EIGENVALUE	RELATIVE PERCENTAGE	CANONICAL CORRELATION	: FUNCTIONS DERIVED	WILKS' LAMBDA	CHI-SQUARE	DF	SIGNIFICANCE
1	.26336	100.00	.457	: 0	.7915	78.783	4	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
MENG	-.44101
MSCI	-.11271
MMATH	-.51301
MAGG	-.33442

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
MENG	-.51548
MSCI	-.13811
MMATH	-.28548
MAGG	-.52729
CONSTANT	8.83054

CENTROIDS OF GROUPS IN REDUCED SPACE

	FUNC 1
GROUP 1	-.28953
GROUP 2	.71790

PREDICTION RESULTS -

ACTUAL GROUP	NO. OF CASES	PREDICTED GP. 1	MEMBERSHIP GP. 2
GROUP 1	243.	186. 76.5%	57. 23.5%
GROUP 2	98.	33. 33.7%	65. 66.3%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 73.61%

T A B L E 37

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES: ENTIRE POPULATIONGROUP COUNTS

	<u>GROUP 1</u>	<u>GROUP 2</u>	<u>TOTAL</u>
COUNT	548.0000	433.0000	981.0000
F FOR INCLUSION	1.00000		
F FOR DELETION	1.00000		
TOLERANCE LEVEL	.00100		
MAXIMUM STEPS	28		

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA.

NOTE: The Entry currently being printed are (usable) Intermediate results.

PRIOR PROBABILITIES -

<u>GROUP 1</u>	<u>GROUP 2</u>
.50000	.50000

F LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

F MATRIX - DEGREES OF FREEDOM: 4,976

	<u>GROUP 1</u>
<u>GROUP 2</u>	150.72637

VARIABLES IN ANALYSIS

<u>VARIABLE</u>	<u>ENTRY CRITERION</u>	<u>F TO REMOVE</u>
AGEN	422.41204	106.14346
AENG	84.56504	39.59064
AMATH	22.26062	21.52089
ASPAT	16.63267	16.63267
AAFR	2.89379	2.89380

CLASSIFICATION FUNCTION COEFFICIENTS

	<u>GROUP 1</u>	<u>GROUP 2</u>
AGEN	.32756	.21535
AENG	.21434	.15456
AMATH	.14749	.10586
ASPAT	.12754	.08962
AAFR	9.14452	8.90164
CONSTANT	-12.95222	-6.17578

<u>DISCRIMINANT FUNCTION</u>	<u>EIGENVALUE</u>	<u>RELATIVE PERCENTAGE</u>	<u>CANONICAL CORRELATION</u>	<u>FUNCTIONS DERIVED</u>	<u>WILKS' LAMBDA</u>	<u>CHI-SQUARE</u>	<u>DF</u>	<u>SIGNIFICANCE</u>
1	.61710	100.00	.618	0	.6184	470.060	4	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
AGEN	-.56788
AENG	-.31541
AMATH	-.22305
ASPAT	-.21078
AAFR	-.08794

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
AGEN	-.05585
AENG	-.02976
AMATH	-.02072
ASPAT	-.01888
AAFR	-.10322
CONSTANT	3.44662

CENTROIDS OF GROUPS IN REDUCED SPACE

	<u>FUNC 1</u>
GROUP 1	-.54833
GROUP 2	.69523

PREDICTION RESULTS -

<u>ACTUAL GROUP</u>	<u>NO. OF CASES</u>	<u>PREDICTED GROUP MEMBERSHIP</u>	
		<u>GP. 1</u>	<u>GP. 2</u>
GROUP 1	548.	425. 77.6%	123. 22.4%
GROUP 2	433	56 12.9%	377 87.1%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 81.75%

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES: FACULTIES OF ARTS AND EDUCATION

GROUP COUNTS

	<u>GROUP 1</u>	<u>GROUP 2</u>	<u>TOTAL</u>
COUNT	140.0000	186.0000	326.0000
F FOR INCLUSION	1.00000		
F FOR DELETION	1.00000		
TOLERANCE LEVEL	.00100		
MAXIMUM STEPS	28		

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results.

PRIOR PROBABILITIES -

<u>GROUP 1</u>	<u>GROUP 2</u>
.50000	.50000

F LEVEL INSUFFICIENT FOR FURTHER COMPUTATION

F MATRIX - DEGREES OF FREEDOM: 4,321

	<u>GROUP 1</u>
<u>GROUP 2</u>	25.17112

VARIABLES IN ANALYSIS

VARIABLE	ENTRY	F TO
	CRITERION	REMOVE
AGEN	69.20267	17.02906
AENG	4.10560	4.10560
AMATH	17.37111	8.98814
AFFR	4.58588	4.50235

VARIABLES NOT IN THE ANALYSIS

ASPAT: Spatial Ability

CLASSIFICATION FUNCTION COEFFICIENTS

	<u>GROUP 1</u>	<u>GROUP 2</u>
AGEN	.29075	.21016
AENG	.17571	.14056
AMATH	.18046	.13605
AAPR	.17210	.13693
CONSTANT	-11.02442	-6.37751

DISCRIMINANT FUNCTION	EIGENVALUE	RELATIVE PERCENTAGE	CANONICAL CORRELATION	: FUNCTIONS DERIVED	WILKS' LAMBDA	CHI-SQUARE	DF	SIGNIFICANCE
1	.31366	100.00	.489	: 0	.7612	87.847	4	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
AGEN	-.53075
AENG	-.25448
AMATH	-.34604
AAPR	-.24957

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	<u>FUNC 1</u>
AGEN	-.06243
AENG	-.02723
AMATH	-.03440
AAPR	-.02725
CONSTANT	3.53046

CENTROIDS OF GROUPS IN REDUCED SPACE

	<u>FUNC 1</u>
GROUP 1	-.56236
GROUP 2	.42328

PREDICTION RESULTS -

ACTUAL GROUP	NO. OF CASES	PREDICTED GROUP MEMBERSHIP	
		GP. 1	GP. 2
GROUP 1	140.	93. 66.4%	47. 33.6%
GROUP 2	186.	44. 23.7%	142. 76.3%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 72.09%

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES: FACULTY OF ECONOMIC SCIENCES

GROUP COUNTS

	GROUP 1	GROUP 2	TOTAL
COUNT	96.0000	66.0000	162.0000

F FOR INCLUSION 1.00000
 F FOR DELETION 1.00000
 TOLERANCE LEVEL .00100
 MAXIMUM STEPS 28

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA.

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results

PRIOR PROBABILITIES

GROUP 1	GROUP 2
.50000	.50000

ALL ELIGIBLE VARIABLES INCLUDED

F MATRIX - DEGREES OF FREEDOM: 5,156

	GROUP 1
GROUP 2	27.05885

VARIABLES IN THE ANALYSIS

VARIABLE	ENTRY CRITERION	F TO REMOVE
AGEN	80.82546	10.65767
AENG	7.74124	8.60193
AAFR	1.52136	1.72468
AMATH	22.19322	12.34436
ASPAT	4.15032	4.34043

CLASSIFICATION FUNCTION COEFFICIENTS

	GROUP 1	GROUP 2
AGEN	.37503	.26045
AENG	.32640	.24551
AAFR	.05513	.02343
AMATH	.22983	.14530
ASPAT	.12521	.07392
CONSTANT	-16.89108	-7.82305

DISCRIMINANT FUNCTIONS	EIGENVALUE	RELATIVE PERCENTAGE	CANONICAL CORRELATION	FUNCTIONS DERIVED	WILKS' LAMBDA	CHI-SQUARE	DF	SIGNIFICANCE
1	.86727	100.00	.682	0	.5355	98.355	5	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
AGEN	-.42776
AENG	-.28908
AAFR	-.13543
AMATH	-.34101
ASPAT	-.22926

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
AGEN	-.04465
AENG	-.03153
AAFR	-.01236
AMATH	-.03295
ASPAT	-.01999
CONSTANT	3.66210

CENTROIDS OF GROUPS IN REDUCED SPACE

	FUNC 1
GROUP 1	-.56333
GROUP 2	.81939

PREDICTION RESULTS -

ACTUAL GROUP	NO. OF CASES	PREDICTED GP. 1	MEMBERSHIP GP. 2
GROUP 1	96.	77. 80.2%	19. 19.8%
GROUP 2	66.	4. 6.1%	62. 93.9%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 85.80%

T A B L E 40

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES: FACULTY OF LAW

GROUP COUNT

	GROUP 1	GROUP 2	TOTAL
COUNT	70.0000	83.0000	153.0000
F FOR INCLUSION	1.00000		
F FOR DELETION	1.00000		
TOLERANCE LEVEL	.00100		
MAXIMUM STEPS	28		

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results.

PRIOR PROBABILITIES -

GROUP 1	GROUP 2
.50000	.50000

ALL ELIGIBLE VARIABLES INCLUDED

F MATRIX - DEGREES OF FREEDOM: 5,147

	GROUP 1
GROUP 2	21.09371

VARIABLES IN THE ANALYSIS

VARIABLE	ENTRY CRITERION	F TO REMOVE
AGEN	27.35553	13.48469
AENG	60.87385	24.68751
AMATH	1.46936	1.56060
AAFR	1.09641	1.18992
ASPAT	2.50624	2.36141

CLASSIFICATION FUNCTION COEFFICIENTS

	GROUP 1	GROUP 2
AGEN	.48461	.35578
AENG	.30253	.19295
AMATH	-.14818	-.11375
AAFR	.10270	.07697
ASPAT	.18007	.13935
CONSTANT	-16.19927	-8.11863

DISCRIMINANT FUNCTION	EIGENVALUE	RELATIVE PERCENTAGE	CANONICAL CORRELATION	: FUNCTIONS DERIVED	WILKS' LAMBDA	CHI-SQUARE	DF	SIGNIFICANCE
1	.71747	100.00	.646	: 0	.5523	80.317	5	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
AGEN	-.50741
AENG	-.59098
AMATH	.14788
AAFR	-.12925
ASPAT	-.18041

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
AGEN	-.05839
AENG	-.04967
AMATH	.01560
AAFR	-.01166
ASPAT	-.01846
CONSTANT	3.60763

CENTROIDS OF GROUPS IN REDUCED SPACE

	FUNC 1
GROUP 1	-.70149
GROUP 2	.59162

PREDICTION RESULTS -

ACTUAL GROUP	NO. OF CASES	PREDICTED GROUP MEMBERSHIP	
		GP. 1	GP. 2
GROUP 1	70.	60. 85.7%	10. 14.3%
GROUP 2	83.	12. 14.5%	71. 85.5%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 85.62%

T A B L E 41

DISCRIMINANT ANALYSIS: FIRST YEAR APTITUDE SCORES: FACULTY OF SCIENCE

GROUP COUNTS

	GROUP 1	GROUP 2	TOTAL
COUNT	243.0000	98.0000	341.0000

F FOR INCLUSION 1.00000
 F FOR DELETION 1.00000
 TOLERANCE LEVEL .00100
 MAXIMUM STEPS 28

SOLUTION METHOD - STEPWISE. SELECT VARIABLE WHICH WILL MINIMIZE WILKS' LAMBDA.

NOTE: The Entry Criteria currently being printed are (usable) Intermediate results.

PRIOR PROBABILITIES -

GROUP 1	GROUP 2
.50000	.50000

ALL ELIGIBLE VARIABLES INCLUDED

F MATRIX - DEGREES OF FREEDOM: 5,335

	GROUP 1
GROUP 2	48.23800

VARIABLES IN THE ANALYSIS

VARIABLE	ENTRY CRITERION	F TO REMOVE
AGEN	162.34464	28.27654
AENG	27.56689	15.02304
AMATH	15.04269	12.99014
AAFR	3.11051	2.49567
ASPAT	7.30852	6.67370

CLASSIFICATION FUNCTION COEFFICIENTS

	GROUP 1	GROUP 2
AGEN	.43358	.30766
AENG	.18253	.11358
AMATH	.23165	.16459
AAFR	.12557	.09888
ASPAT	.14234	.09969
CONSTANT	-19.62750	-9.69371

DISCRIMINANT FUNCTION	EIGENVALUE	RELATIVE PERCENTAGE	CANONICAL CORRELATION :	FUNCTIONS DERIVED :	WILKS' LAMBDA	CHI-SQUARE	DF	SIGNIFICANCE
1	.71997	100.00	.647	0	.5814	182.486	5	.000

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
AGEN	-.47414
AENG	-.31453
AMATH	-.27760
AAFR	-.12137
ASPAT	-.19664

UNSTANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	FUNC 1
AGEN	-.05143
AENG	-.02816
AMATH	-.02739
AAFR	-.01090
ASPAT	-.01742
CONSTANT	4.36118

CENTROIDS OF GROUPS IN REDUCED SPACE

	FUNC 1
GROUP 1	-.41027
GROUP 2	1.01730

PREDICTION RESULTS -

ACTUAL GROUP	NO. OF CASES	PREDICTED GROUP MEMBERSHIP	
		GP. 1	GP. 2
GROUP 1	243.	198. 81.5%	45. 18.5%
GROUP 2	98.	9 9.2%	89 90.8%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 84.16%

SCREE TEST

Figure 1

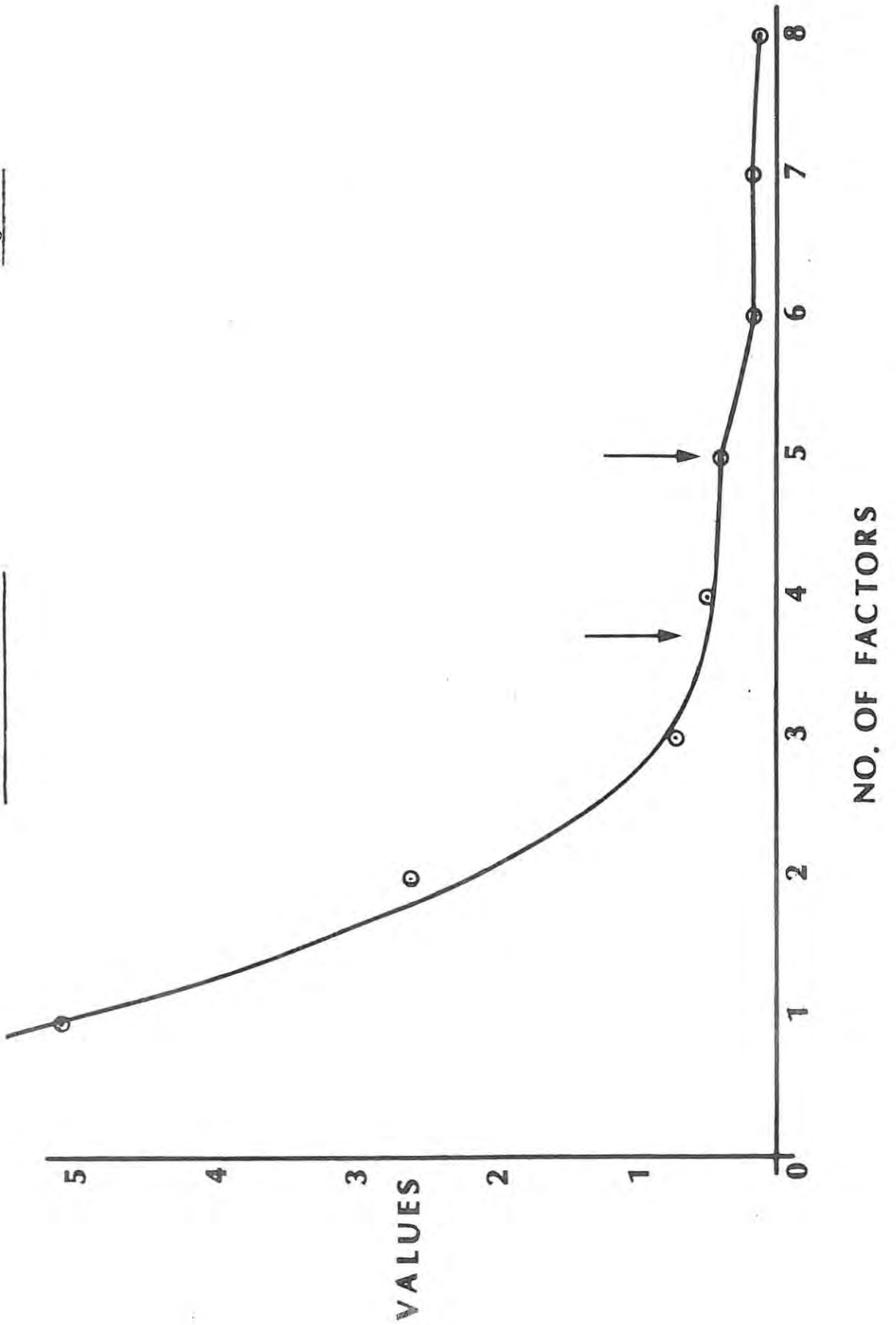
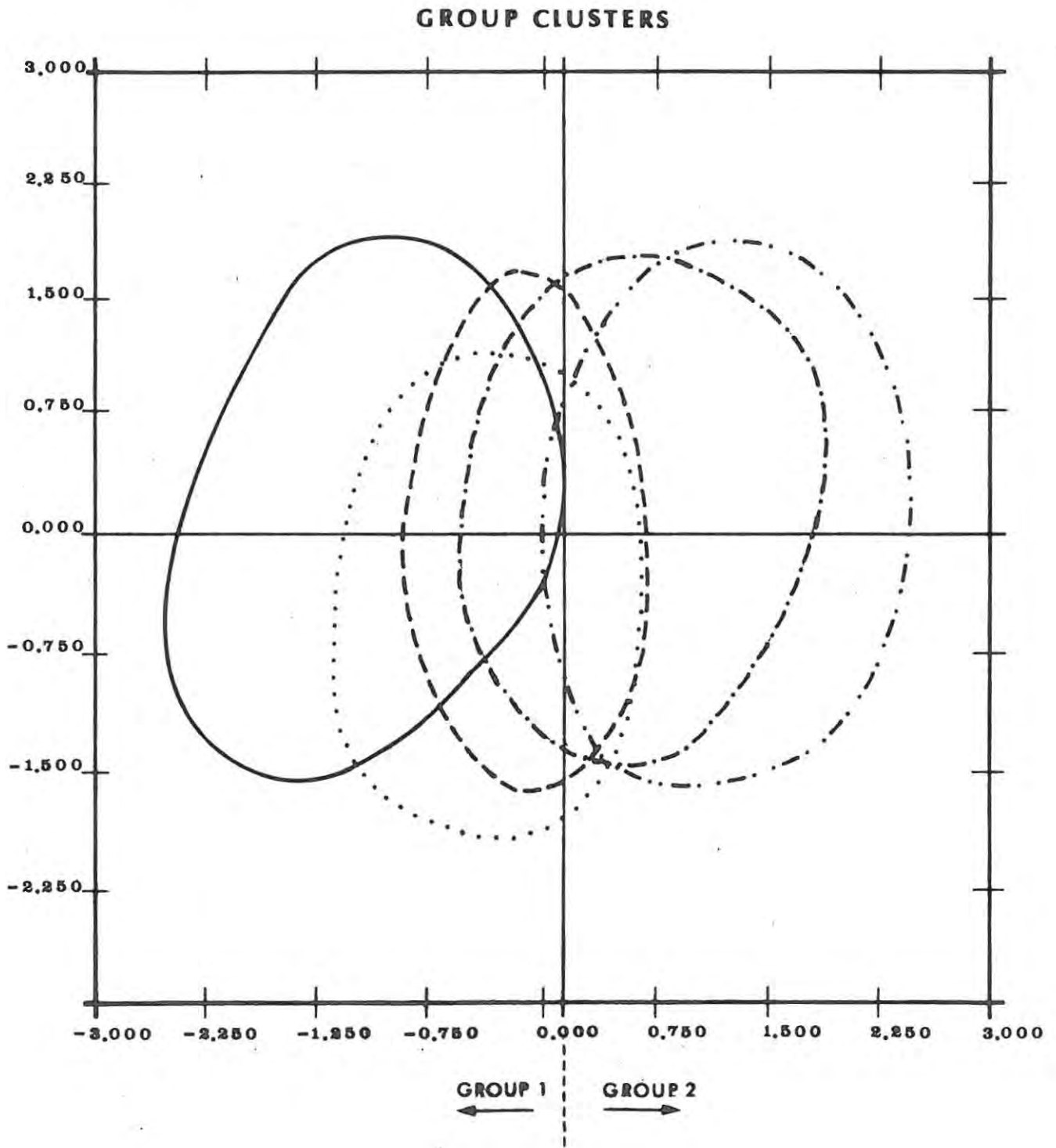
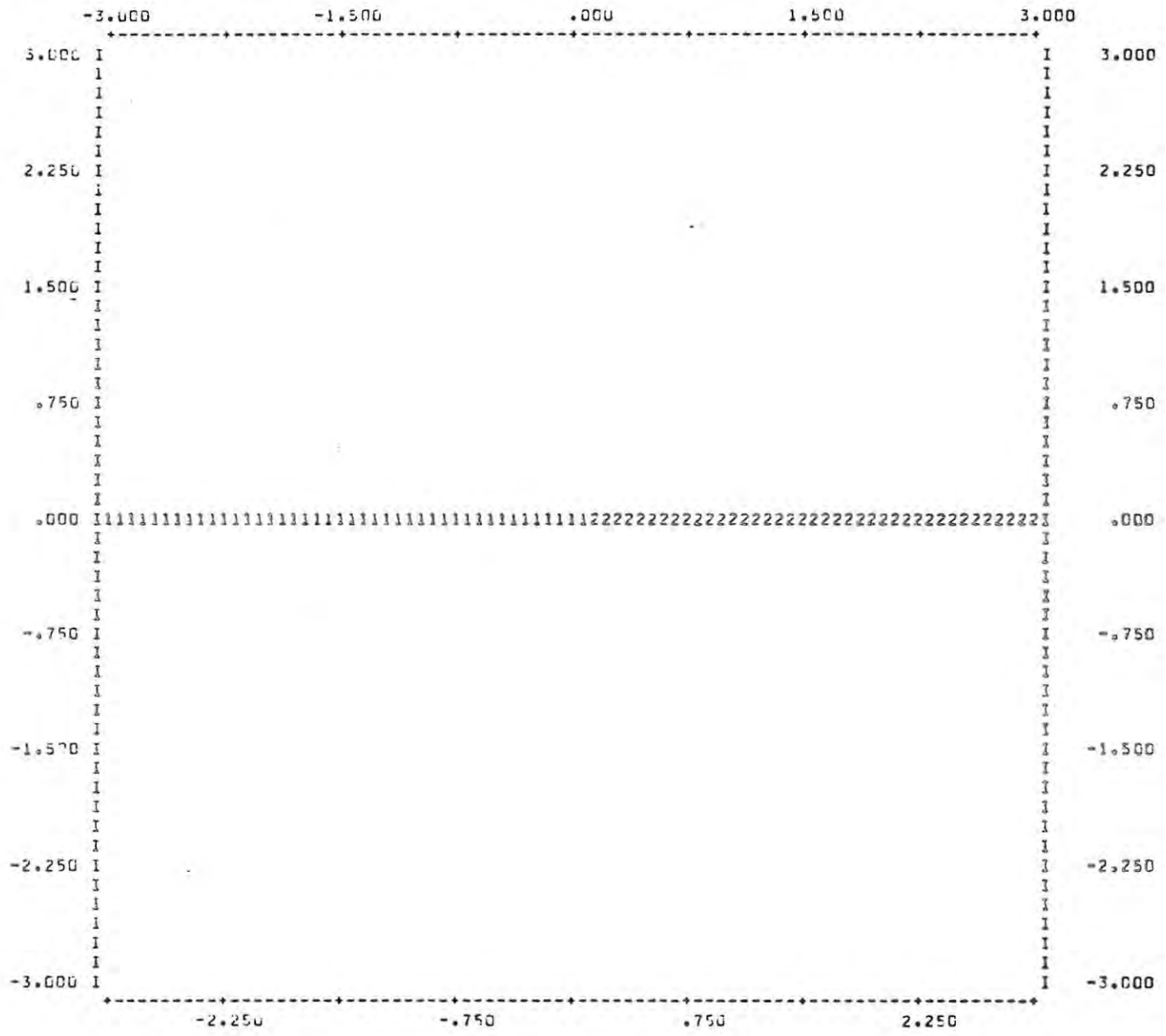


Figure 2



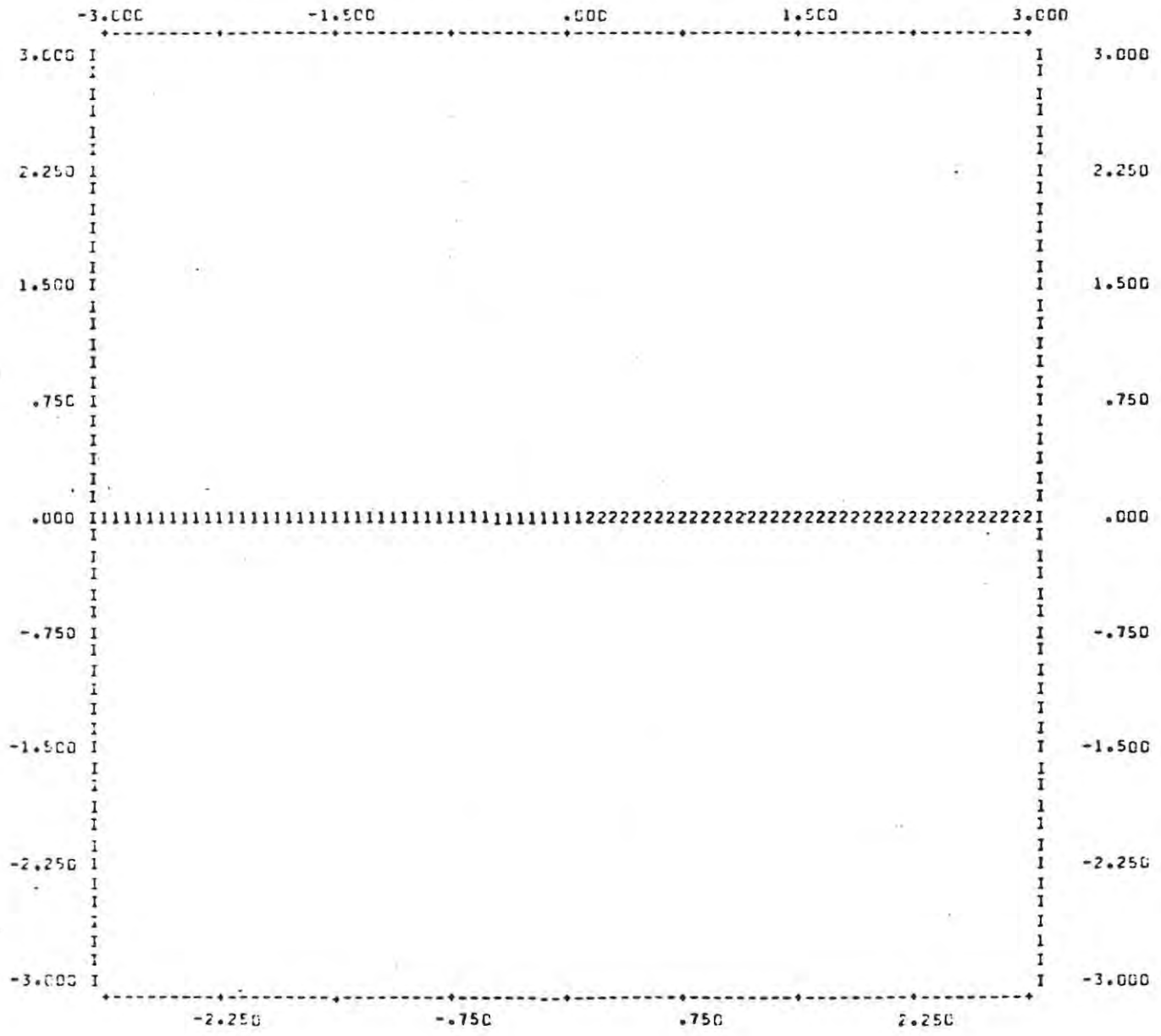
TERRITORIAL MAP OF DISCRIMINANT SCORE 1 (HORIZONTAL) VS. DISCRIMINANT SCORE 2 (VERTICAL).

Figure 3



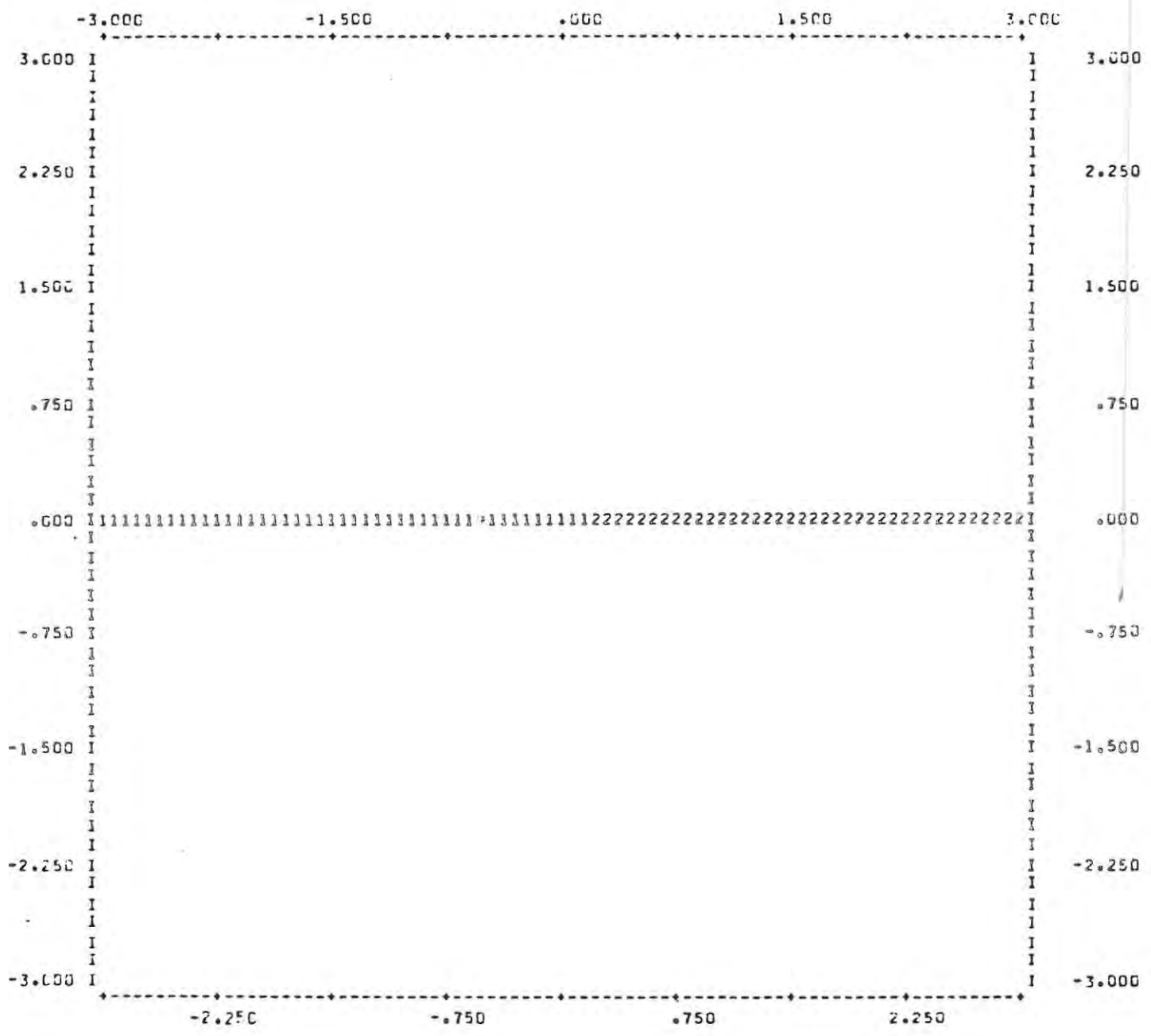
Barba

TERRITORIAL MAP OF DISCRIMINANT SCORE 1 (HORIZONTAL) VS. DISCRIMINANT SCORE 2 (VERTICAL).



TERRITORIAL MAP OF DISCRIMINANT SCORE 1 (HORIZONTAL) VS. DISCRIMINANT SCORE 2 (VERTICAL).

Figure 5

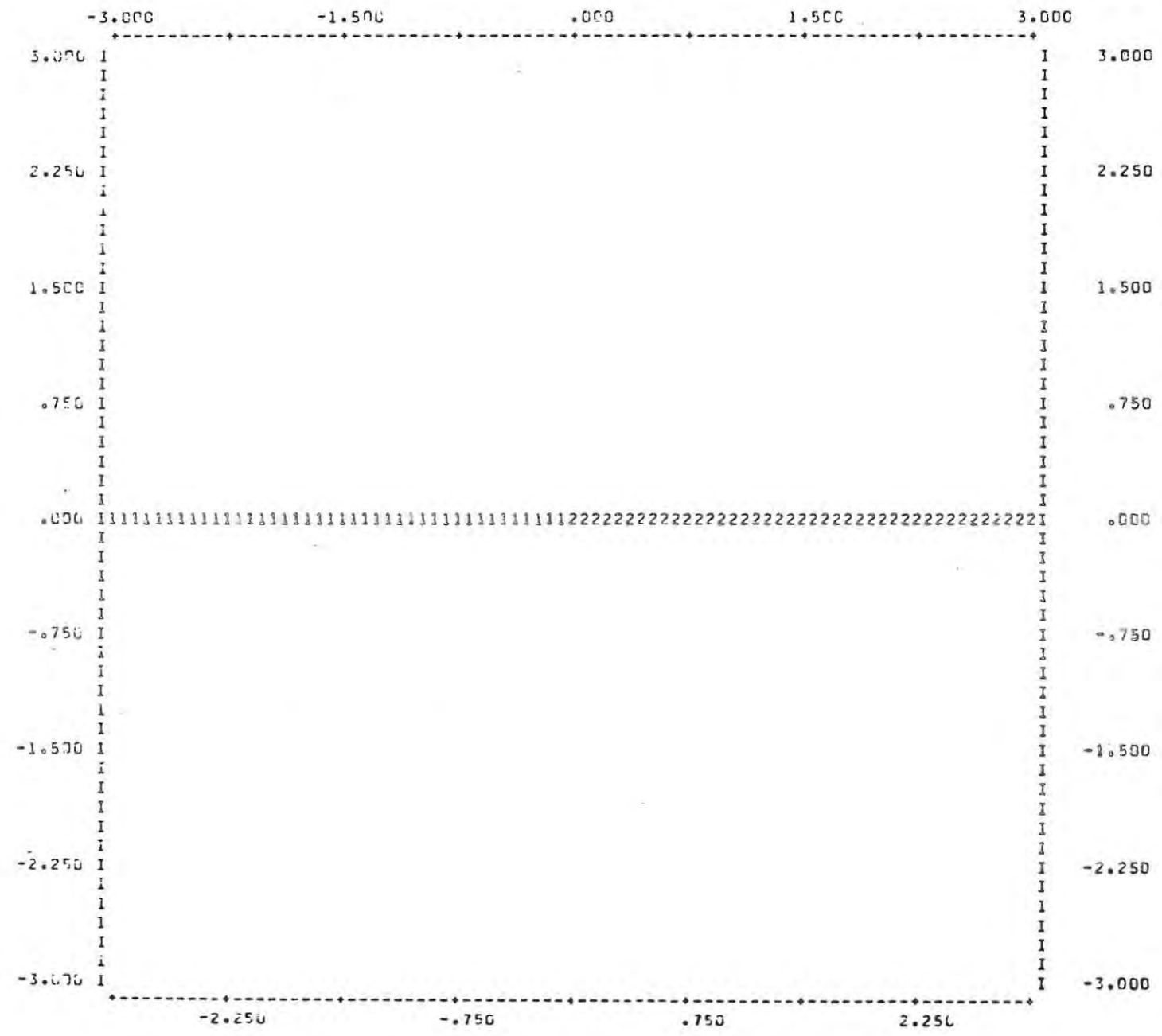


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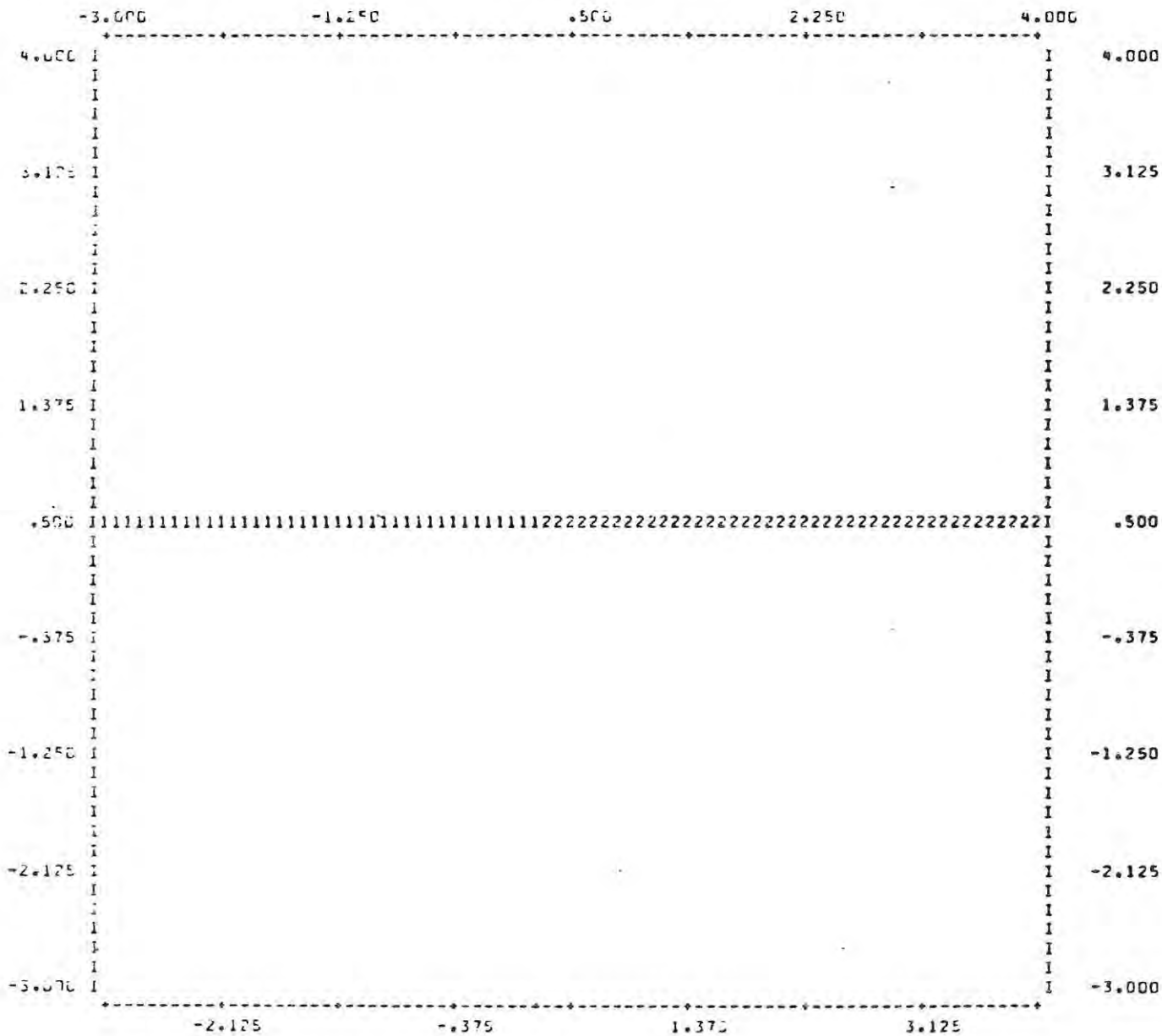
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TERRITORIAL MAP OF DISCRIMINANT SCORE 1 (HORIZONTAL) VS. DISCRIMINANT SCORE 2 (VERTICAL).

Figure 6



TERRITORIAL MAP OF DISCRIMINANT SCORE 1 (HORIZONTAL) VS. DISCRIMINANT SCORE 2 (VERTICAL).



CHAPTER FOURTHE CONTEXT: THE LEARNING MILIEU

4.1 Introduction

4.1.1 Concerning the University of Fort Hare

4.1.2 The South African Government's Perceptions of the functions of the institution

4.2 How do students perceive the functions of the university?

4.2.1 Introduction

4.2.2 The Preliminary Study

4.2.2.1 Method

4.2.2.2 Description of Table 2

4.2.2.3 Discussion

4.3 The Major Study

4.3.1 Introduction: Questions of Concern

4.3.2 Method

4.3.3 Analysis of responses to the open-ended essay questions

4.3.3.1 Description of Table 3

4.3.3.2 Discussion

4.3.4 Evidence from the questionnaire study

4.3.4.1 Conception of and means to success

4.3.4.2 Criteria governing career choice

4.4 To what extent are the students' perceptions change orientated or conservative?

4.4.1 Method

4.4.2 Description of Table 4 and Table 5

4.4.3 Discussion

4.5 Conclusion

CHAPTER FOUR

THE CONTEXT: THE LEARNING MILIEU

The importance of examining the students' learning milieu has been stressed in most studies similar to this one.⁽¹⁾ It is, therefore, the purpose of this chapter to examine briefly the context within which Fort Hare students experience academic life. I propose to consider this from a macro level; the setting of this institution within the legislative framework laid down by the Extension of University Education Act and the application of the principles of this act to university education, and from a micro level, the students' perceptions of the functions of the university and of education.

4.1 INTRODUCTION:

It is generally acknowledged that any university, because of its dependence to a greater or lesser extent on the financial support of the government of the state, is embedded in the state, and that this creates an inevitable tension between the university and the government of the state in which it is located.⁽²⁾ Economic, ideological and political forces are ever present and affect the relations between governments and universities. This emerges very clearly in Ben-David's (1977) historical analysis of higher education in Britain, France, Germany and America. He proposes five major functions of higher education: education for the professions, general higher education, research and training for research, social criticism, and furthering social justice and equality. He shows how in their evolution universities responded to certain needs and opportunities, and that the history of adaptiveness to changing pressures from without is a remarkable feature of the university.

The great complexity of the twentieth century world and the extraordinarily rapid changes occurring have generated conflicts within universities and governments. Where some consensus about the roles and functions of universities exist, these tensions are probably minimal, but in a society where ethnicity is a fundamental element in the political structure, consensus is absent and conflict is endemic. South Africa's university experience has been shaped by ethnic, racial and nationalistic factors in the context of a highly unequal society.⁽³⁾ As a result the university is either rooted in a particular segment of the society or population and becomes a symbol of reawakening, or the university may seek to straddle these dimensions whereupon it may well become *"a battleground for its own possession"*.

Welsh (1977). But this analysis of tension between a university and government is not applicable in the context of Fort Hare, however, There is in ideological terms a smooth relationship between the South African government and the institution per se. Where the tension does exist, however, is between the students on the one hand and the Institution cum the government on the other.⁽⁴⁾ The consequences of this tension especially when there exists ...

"legal-political discrimination the difficulty of studying in a foreign language and in the intellectual setting of a foreign culture ... (and with) ... the image of cultural inferiority ..."

Ben-David (1977).

need to be measured in terms of what Rashdall has called 'the consecration of learning'.

The second point I wish to raise concerns the notion of what is to be considered as knowledge.

Yesufu (1973) and Ashby (1974) have shown that in the African context, apart from South Africa, perhaps the greatest tension has been between global scholarship and national needs. Most African universities are a 'European transplant', laying great stress on the need for measuring up to some 'intellectual gold standard' as established in the West. As such they were not, especially in their early years, an integral part of society and the function and curriculum followed metropolitan models rather than focussing on the urgent needs of the society. Ashby (1974) describes how, for example, Ibadan in Nigeria quickly developed a department of classics, but ten years after its foundation ...

"no courses were offered in engineering, economics, law ... etc. ... and it had taken eight years to establish a department of education."

Julius Nyerere of Tanzania dealt with this tension between national needs and global scholarship when he said to graduates at the University of Dar es Salaam:

"We should ... be extremely foolish if we tried to cut ourselves off intellectually from the rest of the world on any grounds ... Knowledge is international and interrelated. All knowledge is relevant to us, even if we consider ourselves only as Tanzanian

citizens ...

"citizens and ignore our existence as human beings But having said that, and having accepted that, we still have to select: we still have to determine our priorities ... (which) ... can be deduced from an understanding of our present national circumstances and national goals."

Nyerere (1973).

4.1.1 CONCERNING THE UNIVERSITY OF FORT HARE:

The University of Fort Hare was founded as a university college in 1916 largely as a result of missionary endeavour. As such it reflected missionary objectives, namely, evangelization and the education of an elite to 'British Standards' (Ashley, 1974). The education offered came to be seen by its students as a key to assimilation into a common society which embraced the idea of a multi-racial society. Beard (1972) has argued that Fort Hare was a unique institution in South African society:

"It was to an extent a microcosm of a non-racial society in the heart of Apartheid South Africa. It was, furthermore, despite the presence of conflict, a relatively ... successful non-racial society, for such conflict as there was, was generated chiefly by events and conditions outside rather than inside the campus."

The extent to which the missionary norms and values created tensions has not been assessed in this context, but to imply that none or very few were created is to overlook the evidence of such tensions in other areas of missionary endeavour. (cf. M.J. Ashley, 1979). Further more, Shingler (1972) has argued that the powerful segregationalist norms in society at large had long and established roots:

"The idea of segregation had its roots in the racism and idealism of British and South African thought."

The founders of the Institution were not without norms or values but insofar as these came not to reflect those in society at large the pre-1959 University College of Fort Hare was something of an enigma within the context of South African society.

The legislative basis for the 'reconstruction' of the South African university system was laid in 1959, after the government had acquired control over all school education for blacks. Fort Hare was taken over by the government as a university exclusively for Xhosa students. Four new universities were created exclusively for coloureds (people of mixed race), Indians, Zulus and Sotho-Tsonga and Venda students respectively. The rest of the universities, for

whites ...

whites, were prohibited from admitting students who were not white.

4.1.2 THE SOUTH AFRICAN GOVERNMENT'S PERCEPTIONS OF THE FUNCTIONS OF THE INSTITUTION:

It is beyond the scope of this study to pursue this issue in any depth, but the following points need to be mentioned.⁽⁵⁾

In 1959, following the recommendations of the Eiselen Commission the South African government passed the 'Extension of University Education Act' whereby, amongst other things, Fort Hare became a segregated 'non-white' university college for the Xhosa ethnic group. To the South African government this move was a logical step in its drive to force all universities in the country to be ...

"particularistic, sectional and rooted in a people - volksgebonde."
Welsh (1977).

The developments of the late 50's and early 60's reflect this ideology. The ideological assumptions on which the institution, and on which the other 'tribal' colleges created after 1959, were based are to be found in part 2, article 15, of the Christian-National Education policy document of 1954. The final statement of the document is significant. It states:

"We believe finally that native education should lead to the development of an independent, self-supporting and self-providing native community on a Christian national basis."

'Christianity' and 'nation' as with 'education' are seen by Afrikaner Calvinists as exclusive 'spheres of life' which, whilst originating from the Calvinist notion of 'kring' (cf. Kuyper, 1880) has, in the South African context, come to be regarded as justification for some type of separate educational programme for the African. It led, too, to the teaching of God-ordained racial inequality along with the concept of Afrikaner-guardianship. As far as Dr Verwoerd was concerned, this was based on the following assumptions:

"There is no place for him in the European (white) community above certain forms of labour ... it is of no avail for him to receive a training which has as its aim absorption in the European community, where he cannot be absorbed."

Verwoerd went on to criticize the mission schools for the kind of education they provided and significantly once again ended with the political implications of that kind of education:

"Until ...

"Until now he has been subjected to a school system which drew him away from his own community and misled him by showing him the green pastures of European society in which he was not allowed to graze. This attitude is not only uneconomic because money is spent for an education which has no specific aim, but it is also dishonest to continue it. It is abundantly clear that unplanned education creates many problems, disrupting the community life of the Bantu and endangering the community life of the European."

Verwoerd (1958).

Black opposition to this policy was effectively crushed in the early sixties and although twenty years have passed since this statement was made, and in spite of the turmoil of Soweto, there would appear to be no deviance from these principles.⁽⁶⁾ In practice, however, the steady removal of discriminatory practices on the black campuses is a notable feature of the past decade. The apartheid of 1979 is not the apartheid of 1949. Between 1970 and 1971 all the 'tribal colleges' became autonomous universities with blacks being appointed to the councils. White staff members have increasingly come to serve under black heads of department. Since 1978 black and white professors' and lecturers' salaries have been on the same scales although black staff members are not entitled to certain fringe benefits.⁽⁷⁾ In addition, entry requirements have been relaxed to allow African students of different tribal origin to attend the black university of their choice.⁽⁸⁾ At post-graduate level there is now the opportunity for black and white students to register, subject to ministerial permission, at any university. Impressive physical developments and improvements on the black campuses also reflect the increases in government per capita expenditure on students especially since 1959. Yet there remains no mention of the abolition of the 'Extension of University Education Act'. The Minister of National Education in responding to opposition calls to 'open' all universities said that such a move would be "contrary to government policy". (Hansard II, Col.5104, 1978). Moreover, as L.M. Thompson says:

"As the government intends, these universities (black) are training small but increasing streams of people in each of the subordinate groups to perform the roles that are open to them ..."

Thompson (1977).

There has been no deviation from the subordination of education to the policy of geographical segregation and it remains an ...

"... educational ..."

"... educational system tailored by the powerful for the powerless with the intention of ensuring that these universities produce good Kaffirs, Hotnots and Coolies."

Buthelezi (1978)

Nonetheless, research projects have been undertaken by the black universities which are rendering special service to the communities they have been designed to serve. The emphasis has changed, however, from an education which would reinforce the helot status of the black man in a wider South African community to one which aims at being 'separate but equal'. The academic 'gold standard' remains that of the white universities, but this only serves to heighten the tension between 'national' needs, in this sense the independent black homeland states, and global scholarship.⁽⁹⁾ The suspicion surrounding any attempt to change courses from a European to an Afro-centric position reflects this tension and ambivalence.⁽¹⁰⁾

Black education at school level, especially, remains an inferior image of white education (same syllabi, structures, etc) and represents a 'failure' in terms of the Verwoerdian ideal, and perhaps a 'success' in terms of its current outcomes. The developments which have taken place have been in line with preparing blacks for service in their own distinct communities, the independent black homelands, and these continue to be seen as reservoirs of labour for the South African economy.

Welsh (1977) has argued that the whole notion of the black universities preserving and transmitting a traditional culture is built upon the same assumptions which underlie the Afrikaans medium universities. Whilst preservation of a particular culture may be regarded as an important function of a 'separate' university⁽¹¹⁾, equally it can be argued that to make this its raison d'etre is to stifle learning and to violate the view that a university should be a diverse, cosmopolitan institution reflecting the complexities of the wider society. The notion of a volksuniversiteit is legitimate when it flows from within the 'volk' but when it is based on the assumption that what was good for the Afrikaner would necessarily be good for South Africa's black majority, it is unacceptable to both black students and the black community.

Kane-Berman (1978) in his perceptive study of the Soweto riots argues that the attacks on schools during July 1976 should be seen in relation to the whole Bantu Education system. As he remarks:

"The ...

"The ideological aims of Bantu Education discredited it from the beginning. It is rigidly controlled by the government, and its stigmatization as an inferior system designed to keep blacks inferior is reinforced by the pattern of State expenditure on the education of the different races."

All the students in this study are products of this system and it is their perceptions of it which are important if one is to understand their learning milieu.

4.2 HOW DO STUDENTS PERCEIVE THE FUNCTIONS OF THE UNIVERSITY?

4.2.1 INTRODUCTION:

The spate of American and European studies of student attitudes following the growth of student activism and campus unrest of the 60's appears both to be dying down and giving way to analyses critical of the explanatory categories used in much of this work (Meyer, 1973; Salter, 1973; Wood, 1974). However much the interpretation of their findings may be disputed, they seem to have identified fairly clearly major shifts in student outlook over two decades, especially in the United States.⁽¹²⁾ The existing literature on African university students elsewhere in Africa is reasonably extensive and seems to follow the patterns set in the American studies of the 60's. More recent work⁽¹³⁾ has shifted the emphasis by relating the analysis of large institutional structures to the concrete everyday experiences of individual students as they live their lives in society. Such clarificatory studies have yet to be carried out at the black universities in South Africa.

What I am concerned with is how the students perceive the goals of university education especially as from 'within' an 'apartheid university'.

Various problems have faced me in this task.

Firstly, there exists a genuine fear amongst the sample of being 'betrayed' by informers⁽¹⁴⁾, or of being detained by the authorities for making what may be interpreted as 'subversive' statements.⁽¹⁵⁾ In order to offer the students some protection, written responses to open-ended essay questions were anonymous. Yet over 46% of the sample indicated that they were fearful of the consequences of being outspoken. In evaluating the responses this needs to be kept in mind. Of course, the notion of fear is extremely complex and the denial of fear could equally be seen as an index of their belief in a

fundamental right to free speech. Whatever interpretation one may wish to place on their feelings, the frank ethos of the responses is evidence of a willingness to state their views unequivocally. 4.8% of the sample chose not to respond, however.

A second problem concerned the methods to be used. In the initial phases of the study the students were asked to respond in essay form to the following question:

"Please describe your reasons for coming to university and what you hope for from a university education."

Following an analysis of the responses this was modified and three further questions were included. The four questions were:

- "(i) There are many controversial issues in South Africa today. Please list those which you think need close and immediate attention.*
- (ii) Please suggest what you believe should be done to solve the problems you have listed above.*
- (iii) What changes do you see as most likely to take place in South Africa over the next five to ten years or so? (These could be political, social and/or economic).*
- (iv) How do you feel your studies at Fort Hare are going to help you in the future? What do you hope for from a university education?*

Another consequence of the initial analysis was my decision to draw up a questionnaire to attempt to highlight the value dimensions evident in the essay responses. Finally, and in spite of the possible distorting effects of the lack of anonymity, I continued with informal discussions with the students. I propose, therefore, to describe the procedures and the evidence obtained in the preliminary stages of the investigation, the consequent evolution of the procedures used and the evidence and conclusions of the full study.

4.2.2 THE PRELIMINARY STUDY:

The initial survey took place in October 1976 following on the political unrest which focussed world attention on the black cause. The University itself was inevitably affected both indirectly and directly. Many students had relations and friends in Soweto and Langa, two explosive areas, and the

campus itself was subjected to arson and stone-throwing. The University was closed on two occasions following rioting and so it was expected that student responses would reflect a dimension of political awareness. Two hundred and twenty male and female students were asked to describe:

"... your reasons for coming to university and what you hope for from a university education."

The sample included students from the faculties of Arts, Law, Science and Economic Sciences.

4.2.2.1 Method:

The preliminary study relied entirely on the analysis of short essays written by the students in response to the open-ended question already quoted. An inventory-type questionnaire could perhaps have been used to obtain this information but it was felt at this stage that results obtained would be questionable on grounds of response set. Initially the student replies were read and a preliminary content analysis was undertaken. Reasons for coming to university were noted and the frequencies tallied. Where reasons appeared very similar they were combined. Table 1* lists the major reasons reported and the percentage of students subscribing to them. A crude tally of this kind does not, however, reveal what is perhaps most important about these responses: how the responses cluster around various value positions and what consistent linkages occur in the minds of the students.

To provide for a more comprehensive analysis of the values expressed as the students revealed their reasons for coming to university, it was decided to use Rosenberg's (1957) Scale of Occupational Values consisting of four major value categories with slightly modified criteria for inclusion.

* Page 174.

<u>VALUE</u>	<u>CRITERIA</u>
1. REWARD VALUES	<p>Opportunity to gain knowledge and professional skills and so enhance one's employment prospects.</p> <p>Opportunity to make sufficient money and to achieve financial security and higher standards of living.</p> <p>Opportunity to enhance status.</p>
2. PEOPLE CENTRED VALUES	<p>Opportunity to be helpful to people.</p> <p>Opportunity to make a contribution towards the upliftment of society.</p>
3. AUTONOMY VALUES	<p>Opportunity to be free from supervision.</p> <p>Opportunity to exercise leadership.</p>
4. SELF-EXPRESSIVE VALUES	<p>Opportunity to use special abilities and aptitudes.</p> <p>Opportunity to be creative and original.</p> <p>Opportunity to meet and mix with a variety of people and to encounter differing values, life-styles and philosophies.</p> <p>Opportunity to be educated in the broadest sense and to develop an intrinsic interest in a subject.</p>

The students' responses were classified according to the above criteria. It was inevitable that very few students fitted precisely into one value area only since in any unstructured statement interrelations are likely to occur. The pattern of responses were coded and percentage of intersect recorded. (Table 2) (page 175).

4.2.2.2 Description of Table 2:

The Reward Values position dominates the responses with 78.6% of students ascribing to it in one cluster or another. This is closely followed by the People-Centred Values position cluster to which 73.6% of students' responses can be ascribed. The intersect between these two positions (35.5%) confirms the strength of these two value positions. Autonomy Values and Self-Expressive Values are accorded relatively minor importance, the largest component in each being the major value cluster.

4.2.2.3 Discussion:

From the evidence obtained from the review of the essays and the above codification the following tentative conclusions were drawn:

- that the students have a utilitarian conception of a university in that what they hope for from a university education are professional skills, financial security and upward mobility;
- that this concern with rewards coexists with a concern for the family and group responsibilities such rewards bring.

A second issue considered, given the nature of South African society, was whether or not the conceptions or reasons for coming to university are change orientated or conservative. Insofar as it is expected that education will provide a change in the lot of the individual man and insofar as such change is related to the process of black social and economic uplift in the face of poverty and exploitation, the replies certainly revealed an orientation to change. But did the responses reflect a specifically political orientation, some stance, for example, towards the structure and control of South African society that reveals any degree of radicalism?

Given the political situation of blacks in South Africa, a history of violent confrontations throughout the country, the extent to which the university reflects political ideology, and the belief that student political awareness vanguards future change, some radical social criticism or sense of preparing oneself for social change might have been expected to reveal itself in answers to a question about the purpose of university education. This was not at all the case. Only one of two hundred and twenty statements reflected something of this expectation:

"The ...

"The first reason for my coming to university is to try to eliminate the imbalance between Black South Africans and White South Africans insofar as academic and cultural progress are concerned so that Black people can also be recognised as human beings who can improve or try to solve any problems affecting humanity in general My aim therefore is to acquire skill and capacity to be among the front that will negotiate changes in South Africa so that everybody will live in a fair and just society irrespective of the colour of skin. 'Equality to all civilized men South of the Zambezi', Rhodes."

B.Comm., Male.

Why should this be so? Perhaps the original question which asked students to describe their reasons for coming to university and what they hoped for from a university education, neutral as it may appear, implied a conservatism unnoticed by the author. The context within which the question was asked and was to be answered, that of an enquiry into possible reasons for university failure could have limited student replies. But this was not consistent with the open and discursive style of the responses. Alternatively, any radical comment might have been regarded as dangerous rather than irrelevant, but this is to discount the remarkably frank ethos of the responses as well as the protection of anonymity.

The simplest conclusion consistent with the evidence is that change was seen by this group of students in essentially conservative terms. They do not see themselves as committed to changing the structure of their society in any radical way; but they are committed to sharing more fully in it.

4.3 THE MAJOR STUDY:

4.3.1 INTRODUCTION: QUESTIONS OF CONCERN:

If the conclusion reached in the preliminary study is the case then such questions as the following need to be answered. Might coming to a government controlled university be itself a form of political capitulation and is a conservative response to be expected of what might be seen as a 'sponsored elite' or, on a simpler tack, are first year students as yet politically unsocialised? Their experiences during 1976 and the apparent degree of political commitment of black high school students makes this unlikely. Or do the students see the skill and expertise offered by the university as neutral within the political system, their academic subjects in some sense

sacrosanct ...

sacrosanct and universal, enabling them to take their elite places within any new order through the exercise of their professionalism?

In discussions with colleagues two major criticisms were voiced: First, that the initial question implied a conservatism (this I had already suspected) and that if I was looking for evidence of the students' perceptions of the wider context of their studies then certain 'cues'⁽¹⁶⁾ needed to be given. Second, that the question of what constitutes the basic values by which students evaluate their perceptions should be linked to the concept of success. This was based on the assumption that all students wished to become successful people, and the evidence already collected supported this. It was already clear that most, if not all, students and their families have made extraordinary efforts to enable them to reach university.⁽¹⁷⁾ To meet these criticisms as well as to probe the political dimension more successfully, I rephrased the open-ended essay question, added three more, and drew up a short questionnaire.

4.3.2 METHOD:

I have already argued that the need to illuminate the complexity of the social situations involved a reconception of the problem (cf. chapter two). By adopting what Husserl (1962 and 1964) calls 'the general thesis of the natural standpoint', as is developed in phenomenological suspension, I am able to ask myself 'How do I know they think or do ?' Whilst the gradual elimination of my irrationalities does not guarantee an answer to the question 'How do I know that what I conceive exists independently?', I am in a better position to answer it as certain checks and balances are adopted. During the course of this aspect of the research the following were adopted:

First, I reported my conceptions to my audiences. This has meant that my interpretations have not been put aside but set in a context of a network of interpretations (cf. Polanyi, 1958).

Second, I had a sample of the essay responses read independently by two colleagues. I could not expect all the essays to be read or all the interview transcripts, so altogether about 10% were randomly selected. No predetermined categories or interpretations were suggested. I merely asked them to see what they made of the replies.

Lengthy discussions followed to clarify the issues raised. I was not intent on achieving a consensus, it was merely a means of monitoring my own interpretations. Nor was I acting as a 'broker' for I was concerned to elicit their views and the views of the students and not impose my own definition

of the situation on them. I was asking them to explain their and other people's actions in terms of their own actions and not in terms of some criterion of rationality. This is consistent with the 'natural standpoint'. The possibility of students telling me what they perceived I ought or wanted to know remained difficult to avoid or detect. The fact that just on half the sample expressed a fear of the consequences should they speak critically of the authorities is an indication of their acknowledgement of the opportunity to do so. The revised questions were seen as an opportunity to comment on the 'South African situation'. But at no time did I overtly reveal my own stance except, perhaps, by the fact that I was offering them an 'unusual' opportunity. Equally, though, the students could have seen my attempts to elicit 'controversial' or 'political' comment with suspicion. A brief questionnaire (Appendix 4.1) was designed to verify the essay responses. As I have already pointed out, the questionnaire focussed on the students' basic values and their conceptions of success, whilst the revised and additional questions were intended to elicit more directed responses. In 1978/9 this revised procedure was used together with individual student interviews.

4.3.3 ANALYSIS OF RESPONSES TO THE OPEN-ENDED ESSAY QUESTIONS:

As I was concerned to see whether my initial conclusions were justified, namely, that students have a utilitarian conception of the university, I began with an analysis of the responses to question IV.

"How do you feel your studies at Fort Hare are going to help you in the future? What do you hope for from a university education?"

It was not surprising to find that the responses mirrored those obtained in the preliminary study. The sample now comprised 744 students and whilst 57% were male and generally older than the women (cf. Chapter One) no obvious differences in the responses between the two groups were noted. As before, use was made of Rosenberg's Scale of Occupational Values on the basis that people frequently express their values through the occupational choice they make. Frequencies were tallied and clusters and intersects computed (Table 3). (Page 176).

4.3.3.1 Description of Table 3:

The Reward Values position dominates the responses with 74.1% of students ascribing to it in one cluster or another. People-centred values closely follow the reward value position with 71.9% of students ascribing to it in one or more clusters. The percentage of intersect between these two positions (42.9%) confirms the strength of these two value positions. As with the preliminary study, autonomy values and self-expressive values are accorded relatively minor importance (26.5% and 18.2% respectively) with the largest component in each being the two major value clusters.

4.3.3.2 Discussion:

A general interpretation of these clusters and of the students' written responses confirms the preliminary findings; they reveal a utilitarian conception of the university and of knowledge and of people at university for what they can buy with their qualifications in the wider South African society. For the student a university education will provide professional skills which will enhance his job prospects and which will bring financial rewards and security and a concomitant higher standard of living.

The university, therefore, can make or mar the students' future prospects, and the student is very aware of the realities of the labour market.⁽¹⁸⁾

The student is also aware of the socio-political consequences of failure for himself in the wider South African context where the qualified and educated black man is accorded a respect and employment security distinct from his uneducated compatriots.

The first issue to consider is why there is this heavy emphasis on the reward element. The following extracts from the students' replies serve to highlight this dimension and help to illuminate the many threads that form part of this general orientation.

"My reason for coming to the university is that in our Black society most of us are uneducated and as a result they cannot earn a better living because nowadays it seems that if a person is of a lower standard he is not being paid the amount equal to his labour, ... his ignorance is being exploited If I am educated I can go back to my people and give them a light of such things so that they in turn can speak for themselves to those who have employed them ..."

B. Comm., Male.

"If ..."

"If I become a graduate I know definitely that I will be earning a good salary. If you are a graduate you have many advantages. For instance, if I want to go and work in a factory office they will undoubtedly accept me without any bothering. Wherever I go and seek work I would not be stranded. Moreover ... you are highly respected in the community and whatever job you get you have security. Even in the factories everybody can be chased away but you will never be chased away."

B.Sc., Female.

These statements reflect an acute awareness of the insecurity faced by the black worker as well as the desire to encourage their people to shake off the shackles of exploitation. It reflects, too, what these students believe to be the causes of the low living standards experienced by black people in general, the difficulties of finding employment and the importance of education. The belief that education will 'solve' such problems is particularly evident in the following extracts:

"Getting a bachelor's degree in any field is a prestigious achievement in the society. It leads to a well paid job, comfortable life and security and of course the status that goes with it."

B.Sc., Male.

"I have seen that education is playing an important role to maintain the standards they (whites) have achieved."

B.Comm., Male.

This belief is reinforced by the vigorous use of the examination merit principle within the school system - for entry into middle and high school and into university. The consequences for success or failure appear to be very real to the student. The child is brought up in an environment which judges success and failure by examination results with the result that any kind of learning activity which does not contribute to passing examinations is devalued.

The assumption that professional 'white collar' work is easy is also freely expressed:

"As I have worked at factories during vacations ... I was terrified by the amount of work which is expected of a labourer in industry. My intention is to have a profession which will guard against my being jobless."

B.A., Male.

"People ...

"People who are not qualified or educated are in a great difficulty because of the tremendous scarcity of jobs. As a result you find them doing the dirtiest jobs ...

... The reasons for such a condition are plenty, but most important of all is the fact that we live in the world of competition and conflict. So everybody tends to seek for a way to outdo his competitors and obtain the best position in whatever work he is doing. The only way of reaching this kind of position is through education."

B.A., Female.

The last two comments also reveal the limited career-job opportunities available to a black woman.

Additional problems resulting from job reservation, racist attitudes and the difficulties facing blacks and whites in interface work situations is evident in the following extract:

"Before coming here I worked for three years and experienced real hardships. I saw graduates (black presumably) being frustrated by whites of less education. They were literally being frustrated for their education and because they were educated blacks."

B.A., Female.

In the questionnaire I asked students to indicate how they would feel if, in one of their jobs they happened to be supervised by an experienced person with less formal education than themselves. Whilst the majority of students recognised in this question the issue of white/black work relationships raised in the last extract, nearly 84% of students indicated their happiness with such a situation but with the proviso so clearly expressed by the following student:

"If his experience gives him (the supervisor) all the competence relevant to the job, I would accept him on my arrival with the hope that I will be senior too when I've acquired experience to combine with my competence and knowledge acquired at university."

B.Sc., Male. (19)

The high status of the educated person in society is widely reflected in the students' responses. The following extract is probably more explicit than most but it does reflect a widely held view:

"... I ...

"... I do want the gown as it is identical of a learned person. It gives dignity to one and one is respected. If one has attended or has university education he is usually respected and privileged so I would like to be among those privileged; they receive promotions in their fields so I do wish to be like those."

B.A., Female.

Frequently the actual course of study appears immaterial to the quest for a qualification. The following case report was described to me by a colleague involved in counselling students. It reflects, too, what emerged from the open-ended essays:

"A first year student who said his interests lay in science and who said he wanted to be an engineer visited me last week. He had failed mathematics at school but had been accepted to do the Social Work course here. He did not know what that was and when we actually discussed the nature of the course and social work he expressed total disinterest in it. On a battery of tests he scored low on social service and low on people-centred activities. I told him that a College of Advanced Technical Education offered a diploma in engineering and that he could gain admission in spite of his lack of mathematics at matriculation level. 'No', he said, 'I want to be at university. I want the university degree.' I asked him whether he was prepared to sit here for four years studying something he was completely disinterested in and leading to a job he would dislike, and he said, 'Yes, I want a degree.'"

He obviously could not see the link between a course of study and a career. To him the status of the degree was all-important.

Generally, vocabularies of motive are suffused with economic competitiveness, the urge for security and upward mobility. In fact this orientation of the non-arrived fits well a deprived working class model, where 'workers' are involved in a 'struggle' for a share in the good things of a wider society.

"... As an educated someone I will be having better rights and privileges, and will be doing a suitable job fit for my education not causing trouble like being easily chucked off the job or working this cheap type of jobs and being called the Bantu cheap labour. Since from school level I have been seeing graduates wearing their gowns, and we used to say that one day it will be

"us and then students will get an example from me. My studies will also help me in connection with better living since I will be earning a better salary for a better job and I will be knowing better people."

B.A., Male.

There is, however, a wider dimension to this concern with mobility and status: that of family and group responsibility.

One aspect of African society and culture is the importance of supporting less fortunate members of the family. This is not limited to the immediate family but extends to distant relatives. It is not surprising, therefore, to find this traditional duty emerging strongly from the responses. The previous extracts reveal this group responsibility and in the following it is particularly clear:

"... without education you are sunk. Having completed my degree, if there are some funds to carry me up, I will continue thus raising the nation. If there is none more funds any more, what I would have deserved, I will find a suitable job in order to promote my younger brothers and sisters to go further than where I stopped."

B.Sc., Male.

The following extract also reflects this group responsibility and community ethic of so many students:

"So as not to suffer like the uneducated ones suffer and wanting to be of help to my people I decided to come to university. I am the first borne at home, so it could be that my coming here will encourage my brothers and sisters also to come up to this level. It was taught that education is the first step to life. Our principal always told us: 'Education is your key children. Without it life would be a series of day to day activities without achievement.' He told us a woman being the heart of the household must have education and not depend on the husband too much."

B.A., Female.

The evidence, then, seems to suggest that the reward motive is very powerful, revealing itself in a utilitarian conception of the university and of knowledge. The equation that

education = a good job = financial security = status

clearly emerges. But it is important to note that this is not seen purely

in individualistic terms but in terms too of group responsibility, itself related to individual educational success, in the face of social and economic hardship. These conclusions are supported by the evidence obtained from the questionnaire. What is not perceived, however, is that this utilitarian view of knowledge and the emphasis on material rewards contains within itself the seeds of division. I have already suggested that these students are a 'sponsored elite' and are as such being separated from their other less fortunate brothers. The degree to which one may interpret this as part of a wider process of 'knowledge and control' or 'divide and rule' is difficult to assess, if such an interpretation is valid at all. Whether the fear of revolutionary change which is expressed later originates from the fear of losing the perceived material gains likely to accrue from their elite status and education is equally problematic. What is certain is that none of the students would admit this if it were so, nor did they.

4.3.4 EVIDENCE FROM THE QUESTIONNAIRE STUDY:

A total sample of 744 male and female students completed the questionnaire (Appendix 4) during the 1978 and 1979 academic years. As no appreciable differences in the responses of the year groups was evident the evidence and inferences drawn from them are from the two groups taken together.

4.3.4.1 Conception of and means to success:

Reward and people centred values have dominated the responses to the essay question in the preliminary and main studies. These were closely linked to the desire for success in the students' subsequent careers. The fact that most, if not all, students at Fort Hare have overcome considerable odds to reach this level of education would seem to justify linking what students hope to accomplish in their careers with their conceptions of success.

To determine what students mean when they speak of 'success' and how to achieve success, they were asked to choose any six of fifteen characteristics of a 'successful' person. These characteristics had been mentioned at least once in the open-ended essay responses in the preliminary study. The ranked responses are listed in Table A.

TABLE A

STATEMENT		Entire Sample		Males		Females	
No.		Rank		Rank		Rank	
5	Doing your job well	1	86.8%	1	84.4%	1	90.0%
7	Adequately caring for and educating all your children	2	75.3%	5	67.5%	2	79.4%
7	Being able to take care of your family, relatives and friends	3	73.7%	2	72.6%	4	76.3%
1	Earning a high salary	4	73.2%	4	68.9%	3	78.8%
9	Being highly educated	5	66.4%	6	64.6%	5	69.4%
11	Contributing to the development of the community	6	65.3%	3	70.8%	6	58.1%

Although minor differences in ranking occur between the males and females, the most striking is that concerning the contribution to the development of the community. It is possible to explain this difference in terms of the tendency for men rather than women to assume leadership roles in South African society especially as they relate to broad socio-political issues (cf. Van der Merwe et al, 1978).⁽²⁰⁾ Statements 7 and 8 are very similar and could be taken as one without effectively altering the overall rankings. The overall lower percentage responses of the male students in all but one of the six categories can be explained by the fact that they spread their responses more widely over the fifteen alternatives. Males and females concurred with the remaining rankings, however. These six most highly ranked characteristics of success and means to success can be seen as fitting the patterns which emerged from the content analysis of the open-ended essays. Reward and people-centred values dominate the rankings. Success is limited to aspects of individual and community security whilst being highly educated can again be seen as a means to that end. As I have already pointed out, education is perceived to be a primary means to success. (This is not an exceptional finding: see for example; Dore, 1976 or Barkan, 1975).

Furthermore ...

Furthermore, the rankings and the essay responses also suggest that wealth, power and prestige are inextricably linked with the importance of individual and communal security and welfare (cf. Tunmer, 1972). It is worth speculating as to the reasons for the higher percentage of females (nearly 10% more than the males) who indicated that earning a high salary is an important means to and characteristic of success. Perhaps it is that the practice of migrant labour whereby the menfolk of the home spend months away from it, so placing great responsibility on the women for the upkeep and maintenance of the home and the family's wellbeing, could explain this difference.⁽²⁰⁾ It has also been suggested that the subjugated position of the women in tribal society where much responsibility is placed on the women to bring in the family money and where the men in response become part of the palaver class could also explain this difference (Stampa, 1979). Whatever the reason, high status jobs for black women have traditionally been teaching and nursing, neither of which are highly paid but which offer career security. These jobs contrast with the low wages and insecurity faced by the majority of black women who are employed as domestic workers (cf. National Council of Women, Alice. 1979 Report).

A better reflection of the students' perceptions of their future job/career prospects in South Africa can be obtained from their responses to questions B2a and B6. In response to the question whether they thought their prospects of becoming a successful person are better, worse or about the same as others in South Africa, the majority of students felt their chances were about the same as others (see Table B).

TABLE B

	<u>Entire Sample</u>	<u>Males</u>	<u>Females</u>
Chances seen as better than others	15.6%	15.7%	15.6%
Chances about the same as others	71.5%	69.8%	73.8%
Chances worse than others	12.9%	14.6%	10.6%

Of interest are the reasons offered in support of their opinions for they reflect and confirm two key points. One is the trust and value placed in formal education and qualifications. The other is an acute awareness of the prevailing political circumstances in South Africa today and their response to it.

Whilst ...

Whilst very few students are quite as optimistic about their future prospects as the following one:

"High education leads to a high salary and this leads to higher wealth and by so doing, you live in luxury which means that you can enjoy success."

B.Sc., Male.

the belief in the value of education so evident in the essay responses emerges again.

The responses from both groups, those who feel their opportunities are about the same as others and those who felt they are worse, also provides a political comment. The following extract typifies the reasons given by the majority:

"My prospects are about the same as others because I believe in equality for all, although we may not all be equally gifted in the same area. I believe all human beings are born equal."

B.A., Male.

A political metaphor is also used to justify the belief that chances are worse than others. The following two extracts reflect this:

"My prospects are worse than others with the same amount of education as myself because I belong to a race which is lowest paid in disregard of how much education I have."

B.Comm., Male.

"The laws of the country have been so constructed so as to make a black always occupy an inferior position and so structured so as to greatly limit his advancement whatever his education."

Law, Male.

The particular career uncertainties prevailing for women, something I have already commented on, prompted the following interesting comment:

"We as women receive the same education as men, but our salaries are not the same. This is a worry to all women of all races."

B.A., Female.

Closely linked to these responses are those concerning the degree of satisfaction students feel about their career prospects (Question B6). Table C lists the responses to this question.

TABLE C

About prospects for advancement:

	Entire Group	Males	Females
Very satisfied	43.3%	44.8%	43.2%
Fairly satisfied	51.3%	50.0%	52.2%
Dissatisfied	5.4%	5.2%	4.6%

Although the responses to this question are marginally more optimistic than those in question B2a, the reasons offered by students for feeling as they do are remarkably similar to those already quoted. Once again there is reference to job reservation and other forms of discrimination likely to be encountered when they enter the job market.

One male B.Sc. student rather cynically added that his prospects for advancement ...

"... depends upon the success or otherwise of the homeland and separate development policy."

Again, as has been already emphasised, the fact that students hope to leave university with a degree is a major reason for feeling optimistic. They have every reason to be so when one considers that about 0.4% of black students reach university level education (S.A.I.R.R. 1978, Annual Report). Equally important is the knowledge that South Africa's future economic development is dependant on the provision of skilled and highly trained manpower. They see themselves as being in a position to fill these vacancies as well as sharing in the material benefits which they believe will flow from such an involvement:

"there is a continuing need and demand for qualified and skilled workers in South Africa. My prospects for advancement are thus very satisfactory and my career will give me satisfaction and financial security."

B.Comm., Male.

Yet the confidence expressed in this extract is likely to be tempered by these 'devices' which would seem to maintain job discrimination. Davis (1978) has suggested that these are first, the re-definition of the colour bar, second, the fragmentation of skilled jobs into several semi-skilled operative jobs, and third, by creating border industries. These devices, he argues,

have ...

have the effect of keeping blacks in their inferior position, and of paying them less for work formerly done by whites.

4.3.4.2 Criteria governing career choice:

With success being perceived to be dependent upon obtaining higher education and a secure and financially rewarding career, it is of interest to consider the nature of the students' career intentions and their criteria for choosing the career they do.

In an attempt to gauge the importance of the criteria governing their career choices, students were asked to choose three of nine career choice criteria. The ranked responses are listed in Table D:

TABLE D

Statement	Entire Sample		Males		Females	
	Rank		Rank		Rank	
The salary you will receive	1	66.1%	1	66.0%	1	66.3%
The security of the job	2	52.7%	2	52.8%	2	52.5%
Application of knowledge	3	49.5%	3	47.2%	3	46.9%

The usefulness of the job to the country and whether the type of work is of interest to one were also ranked fairly highly. The respect and prestige conferred by the job was ranked bottom. This seems to contradict earlier assertions concerning the importance of status. Two explanations for this are possible. First, the alternatives offered may have appeared to be of a more immediate concern to them in choosing a career. Also, students were asked to choose three criteria only. The more likely explanation is that the students already assume this status because of their education. The evidence from the essays seems to indicate that status is perceived as being derived from education and security and vice versa. Certainly when one considers their occupational choices, where high status careers were chosen, and their reasons for their choice, such an interpretation seems valid.

Table E lists the career choices of the sample.

TABLE E

Desired or Expected Occupations	Rank	Entire Group	Males	Females
Education	1	25.3%	16.0%	40.0%
Business, Commerce & Industry	2	23.4%	26.4%	19.4%
Medicine & Paramedical Pursuits	3	22.3%	25.6%	18.1%
Law	4	12.1%	14.6%	3.8%
Social Work	5	6.2%	2.4%	11.3%
Agriculture	6	3.8%	6.6%	0.0%
Uncertain		6.2%	6.2%	6.3%

The fact that teaching occupies the highest ranking is not surprising, nor does the ranking differ appreciably from Tunmer's study (1972). Teaching careers offer long-term financial security since the demand for teachers is likely to exceed the supply for many years. Within the separate Department of Bantu Education (now named the Department of Education and Training) a person with a degree finds very rapid promotion due to the ever increasing number of schools being built. So whilst salaries for teachers tend to be lower than those in other professions, opportunities for advancement are many. It is perhaps this which also explains the larger number of women than men who choose teaching as a career. Another reason for the support for teaching as a career is that per capita far more bursaries are offered to students wishing to become teachers than for any other profession. Although a high number of students hope for careers in the medical and paramedical fields, such choices are relatively unrealistic for only limited places are available on the pre-medical course at Fort Hare.⁽²¹⁾ Hence, students are forced to enter residual careers where opportunities for certain forms of employment exist. As opportunities and prospects for a successful career in business and industry increase so numbers of students intending to pursue careers in these areas are likely to increase. It is interesting to note the increase over the past three/four years in the number of students who intend to pursue careers in computer science, engineering and land surveying (Fort Hare Admissions Register). But restrictions stemming from the availability of certain courses, here or at other black universities, and in career opportunities, force students into residual careers.

The very few students who desire civil service careers or careers in politics is perhaps indicative of how students presently perceive their political roles. The responses to the essay questions reflect a negative view of participation in 'homeland' politics. Perhaps, also, they are aware of the risks inherent in such involvement. The phrase 'sell-out' has been frequently used in connection with homeland politicians.

Of significance too, is what some students refer to as the 'ethnicity factor'. In the state controlled professions such as teaching, the civil service and within the development corporations, appointments and promotions are dependent on ethnic criteria. A 'mature' library science graduate explained to me why he was studying law.

"It will give me some freedom of choice regarding where and for whom I wish to work. At present my career prospects are limited to working here in the Ciskei. I don't want to be beholden to anyone. When you are your employer treats you badly. He knows you can go nowhere else, and so do I, so I don't complain."

Whilst the majority of students see the issues involved in terms of job reservation as a white-black issue, the problem is more complex. Group affiliations, hardened by the policies of the South African Government, seem to influence the career choice and thus can affect the individual's commitment to the 'chosen' career (see, for example, Davis, 1978, on the restrictions placed on choice of work for blacks).

In the questionnaire the students were asked from whom or from where they could obtain career guidance. Table F lists the responses made:

TABLE F

Source of Career Guidance	Male	Female	Entire Sample	Rank
University lecturer or teacher	1 78.3%	1 83.8%	80.6%	1
The University Administration	2 34.4%	3 30.0%	32.3%	2
A recent graduate	3 26.4%	4 29.4%	27.7%	3
Parents or relatives	4 22.2%	2 31.9%	26.3%	4

The difference in ranking of parents and relatives between male and female students is perhaps explained by the fact that more women than men are second generation university students (31.9% against 15.6%. 22.6% of the sample were second generation university/college students).

Whilst the responses as such provide an indication of the sources of guidance it does not raise the fundamental political assumptions which underlie any careers guidance. As the student essay responses clearly reflect, career choice and hence careers guidance is essentially concerned with access to power, status and wealth, as well as opportunities for self-fulfilment. The students appear to consider the right to work both as the right to be employed and, more widely, as the right to have access to choices within the range of their abilities, and to the means of negotiating their employment.

I have argued that people frequently express their values through the occupational choice they make (cf. Rosenberg, 1957). Moreover, as Tunmer (1972) points out:

"for most citizens of a country, their greatest contribution to society's development and change will be through the careers or jobs they will follow rather than through direct political action."

In this highly politicised setting, however, the social and political connotations of occupational choices are likely to be more obvious and to assume a more significant public meaning. In reality, therefore, the most important career choice made by these students is one between the following options. The first is to follow the conventional route to individual advancement through education and a career. The second is to follow the traditional educational and career routes, but to do so in a way which makes it clear that one is doing so in order to make one's developing skills available to one's own people. The third is to reject the former entirely. As the evidence reveals, options one and two are being exercised by the sample with the community-centred second option being the most widely followed. During the unrest in 1976 black university students were called 'sell-outs, of joining the Whites' (option one), by the Soweto S.R.C. The subsequent unrest on the campus could be seen as one way of making it abundantly clear that option two was being exercised.

4.4 TO WHAT EXTENT ARE THE STUDENTS' PERCEPTIONS CHANGE ORIENTATED OR CONSERVATIVE?

The second issue I wish to consider is whether or not their conceptions of what they hope for from a university education is change orientated or conservative. As with the evidence from the preliminary study, the emphasis is on changes related to black social and economic uplift in the face of poverty and discrimination. The rephrased questions, however, elicited specifically politically orientated responses. Already one can detect the political dimension in many of the extracts quoted, but by asking students specifically:

- *to list those controversial issues in South Africa today which require close and immediate attention;*
- *to suggest ways and means of solving these problems; and*
- *to speculate about possible political, social and economic changes likely to occur in South Africa over the next five or ten years,*

they were encouraged to reflect on their current situation here at Fort Hare and on their future roles.⁽²²⁾ Their very attendance at a separate university was also being probed and this seems to have raised certain fundamental questions in the students' minds.

4.4.1 METHOD:

The essays written in response to the questions already quoted were read and a content analysis was undertaken. Table 4*reflects the clusters into which the responses fitted. The percentages of intersect between these positions highlights the problem of trying to discuss any such issue separately. Not that this was done by the students, however. The majority of the responses recognised the complexity of their task and reflect an overall perspective rather than being limited to a single dimension alone. It was also evident from the responses that the individual questions were seen as part of a single extended essay. After an initial perusal of the responses I noted that various emphases were evident, but I had difficulty in deciding what represented one emphasis rather than another. There remained the need to highlight the various emphases, however. I resolved this by listing the controversial issues raised, the 'solutions' proposed and the specualtions regarding future changes. This made the four dimensions more obvious (see Table 5)** The responses were then re-read and classified according to the criteria for inclusion listed in Table 5. But, as I have already mentioned,

* Page 177,

** Page 178.

the students did not necessarily see the issues separately, I have attempted to resolve this problem by noting the clusters and intersects between these positions. The proposed solutions to the issues raised were all seen on a macro level as primarily involving political decisions to effect changes within the various dimensions. The same is true of the students' speculations about future changes. Here students also comment on the consequences of no political change taking place in South Africa. As such the responses reflect an orientation to change.

4.4.2 DESCRIPTION OF TABLE 4 AND TABLE 5:

The largest cluster relates to perceived economic and political problems with 91,3% and 88,9% of students respectively suggesting them in one or more clusters. Related to these are the smaller clusters concerned with educational and demographic issues. Of particular interest is the percentage of the responses in two intersects; those relating to economic and political issues (1 2) and those relating to economic, political and educational issues (1 2 4). Table 5 lists the issues raised by the students in their essays, the proposed solutions and how the future is perceived by them.

4.4.3 DISCUSSION:

The very nature of questions 1, 2 and 3 appears to have provided the necessary impetus and opportunity for the students to examine the context of their present studies. Tables 4 and 5 show the extent to which the invitation was accepted. The reward motive seen in individualistic and group terms, and the political, social and economic concerns appear to be embedded in an overall orientation to change. To think of change as I did in the preliminary study, in terms of radical and/or conservative is to simplify a complex orientation, and would depend on prior assumptions. This I wish to avoid and to present rather the evidence of the students' perceptions of the context in which their studies and aspirations are embedded.

Four crucial features in the responses stand out:

First, that learning, knowing, understanding and thinking 'civilize'; that education, the cultivation of the human mind, is the foundation of a good and economically productive society and that the improvement of education is a means to a better society. Given what has already been said about the importance of education, such an orientation is not surprising. The following extracts are no less explicit:

'We ...

"We educated people will play an important role in the struggle, even in an armed struggle."

B.A., Male.

"No meaningful change in the political structure of South Africa will come until all people have been provided with a broad base of education and so awoken to political consciousness."

B.Sc., Male.

That he should have chosen to distinguish between a 'struggle' and an 'armed struggle' suggests perhaps a justification for his attendance at an ethnic institution whilst some of his peers have gone abroad for military training.

The politicizing function of education is expressed by many students and appears to be one aspect of the utilitarian conception of education. It would seem to be a further reason for the high value given to education in black society. As the following student remarks:

"People must understand other people's customs, culture and religion, and must recognise them. People must be politically and socially free - equal rights and no colour bar etc., but this will only be achieved by improving the standard of education among the races and giving us an equal standard of education as Whites."

B.A., Female.

The system of Bantu Education is severely criticized particularly the education they have received in school. A number of students argued that Bantu Education was aimed at keeping them subservient and 'in their place', whilst others quoted from Khotso Seathlolo's (erstwhile Chairman of the Soweto Students' Representative Council) October 1976 press statement. In it he referred to the system of Bantu Education as one which aimed ...

"to reduce us, mentally and physically, into 'hewers of wood and drawers of water' for the white racist masters."

(cf. Kane-Berman, 1978).

Fewer students comment specifically on their present attendance at an ethnic university, however. Of those who did the majority were at pains to explain away their reasons for compromising with a system of education they had previously, in the earlier quotations, been castigating. The following extract highlights the dilemma facing these students.

"If ..."

"If I did not come here, where would I go for a university degree? Yet, for what reason is the education separated? So what kind of education is given to Blacks and why? If I stay away it will please the 'enemy', but if I come it will also please him. But I shall be able to go to one of the Universities for Whites after I get a degree here."

B.Sc., Male.

This student rationalises the double-bind situation by hoping that one day he will obtain ministerial permission to follow a post-graduate course at a 'recognised' white university. To him, and the majority of the sample, the university appears to be seen as both an opportunity and as a restriction. Later I shall suggest that the recognition of these contradictions has serious implications for scholarship. Given the overwhelming desire to improve their socio-economic position it is not surprising that so many students appear to adopt an attitude of fatalistic resignation to their presence here. It could also partly account for the anxiety-ridden atmosphere which sometimes erupts into overt hostility when tests or marks are discussed or examinations approach.

Whilst the majority of the students suggest the abandonment of Bantu Education and its replacement with the *"same system for all races with equal standards"* (B.A., Female), very few suggest what the following male Arts Faculty student does:

"Mixed schools, I think, are the best solution to our present chaos. It is the only way to learn about each other. Also our parents don't have money to educate us and most of our brothers are left uneducated and they will work till such a time no blood will be flowing in their veins."

(B.A., Male).

The major thrust of the 'solution' proposed is for an equality of educational provision, standards and resources, at school and university level, but how this is to be effected is not commented on by most. There is no simple answer to why this should be so. Perhaps it is another way of rejecting that which is secular and 'white' as distinct from an education system which is universalistic and representative of all the people of the country.

As one male Law student states when speculating about the future:

"In ..."

"In five to ten years time there won't be Bantu Education and White Education, Bantu Presbyterian Churches and White Presbyterian Churches anymore, only one common system."

Law, Male.

A second feature that stands out in the responses is that such changes as are envisaged are seen essentially as political changes, the equitable allocation of resources and a redistribution of power. The literature on Apartheid is extremely extensive and it is beyond the scope of this study to attempt to review it.⁽²³⁾ The rejection of Apartheid and Separate Development by blacks forms a major part of this literature but studies of black students at the separate black universities have not been made.

Table 5 lists the political issues raised by the students. If the ideological purposes underpinning Bantu Education are to induct Africans into a particular political order and for service within it, the comments of the students provide little hope for the realization of this goal. The responses are explicit and unequivocal in their attitude. The following extracts bear this out:

"Concerning Separate Development, Black people should be given the right to share the richness of South Africa and not be forced to belong to puppet Homeland States. Blacks should therefore have the right to vote and be represented in a common parliament. There must be majority rule even if it is not Black for it is the only way of avoiding communism which is the creed of desperate people."

B.Sc., Male.

Similarly with the following extract:

"The situation of race discrimination, Apartheid and job reservation needs close and immediate attention. The Homelands and their bribed chiefs should be eradicated. We must be led by one body composed of all peoples living in South Africa ... If South Africa can rid itself of Apartheid, offer equal opportunities to everyone and the whites can regard anyone as a human being and treat them equally, then we will all prosper."

Law, Male.

The ...

The perceived way of 'solving' these problems is seen in terms of the franchise being given to all adults. Very few students mentioned the means by which this is to be achieved. There was one proposal for a national convention, but for the rest the real issue was the granting of 'one man, one vote'. Again very few students made any comment on the form of any future government. A federal arrangement was suggested by a few (2%), but the majority of those who were not just concerned with the consequences of white intransigence tended to see a very similar political arrangement to the present only without the independent homelands and based upon universal suffrage (21%). There were no clearly articulated alternative forms of government suggested, although as I shall suggest later communism was raised as a consequential alternative.

There is no doubt from the responses that the perceived 'subservient heritage' of Bantu Education and Apartheid is firmly rejected by the sample. What is equally important is their belief that from such political changes economic advantages will accrue to all. This is the third generalisation to emerge from the responses. This is evident in the last extract and is also evident in the following one:

"Apartheid gives South Africa a lot of trouble. It is very expensive for the country to maintain ... the outside world is threatening us with sanctions ... millions of rands are being wasted on internal and external propaganda and defence and we all know about THE INFO SCANDAL (!). Abolish Apartheid and use the money one saves (on maintaining it and the defence bill) more profitably to create jobs for the unemployed, to combat inflation and to develop the country."

Law, Male.

It was inevitable, given the insecurity faced by blacks in the economy, that many students raised the unemployment problem facing the country. In most cases it was discussed together with the issues of job reservation, the low wages generally paid to blacks and the cost of implementing and defending Apartheid. It would seem too that the implementation of the general sales tax has been a further source of concern, for nearly a third of the sample called for its abolition. I have already suggested that one possible reason for the strength of the reward values orientation and the utilitarian conception of a university education is the economic insecurity faced by blacks. The extracts already quoted reflect this clearly. Apartheid and job reservation are generally blamed for this insecurity as the last extract

indicates ...

indicates. Some 12% of the samples raised the following issue:

"As more and more machines are invented the few people are needed to work in the factories. Even in the field bigger machines like harvesters are taking away our work. People must be employed otherwise they get no money and the outcome is starvation and poverty."

B.A., Male.

This is a worldwide problem and whilst none of the students are incipient Luddites their call for labour intensive as distinct from capital intensive industries reflects the broader problem of unemployment. There seems to be no evidence of what Berger (1967) calls 'nativism'; an attitude of hostility towards modernisation, involving rejection and a destruction of its symbols and institutions. As I have already mentioned, the education and qualification they are receiving are seen by them as their means of escaping the problem. None consider the possibility that they may one day have to make decisions concerning the problems they are now raising. Nevertheless, the consequences of not solving them, of not providing the opportunities for work, are seen as affecting the entire country. Whilst many students blame the escalating crime figures in the black townships on unemployment and poverty, others see this violence eventually engulfing most areas of South Africa. The political dimension of the economic problems is reflected in the degree of intersect between the two. As the following student so pointedly asserts:

"When a man has a family to support but has no work he becomes desperate and turns to crime, drink or violence. He will grab at any straw that is offered him and we must also remember that communism is the ideology of the desperate man."

B.Comm., Male.

A number of students make reference to communism as being an ideology people turn to in desperation. It is difficult to understand what is meant here for it may be that the spectre of communism is being held up as a threat or warning to the South African Government to do something. Certainly the 'threat of communism' has prompted government action in other spheres of life. Perhaps the man is simply in fear of communism for the news media do tell one to be so quite frequently. But the political implications of acts of violence by blacks are well understood by the following student who, after commenting on how poverty and desperation can force a man into crime,

goes on to say ...

"... and if he (the black man) is armed and attacks whites the first thing the police think is he is a terrorist and if he resists arrest he is lucky to stay alive."

Law, Male.

The expected consequences of intransigence by the South African Government range, as one might expect, from those who feel extremely pessimistic to those who have resigned themselves to what would seem to be a series of piecemeal changes. It is difficult to quantify those who could be classified as pessimistic and those as optimistic because one 'group' may be more articulate than the others. Generally, however, about 70% of the responses reflected a pessimistic outlook, a sense of hopelessness although not helplessness.

"It is time those whites who feel with us join us in revolting."

B.A., Male.

Genuine fear of the consequences is expressed by the pessimists, however. What is also of interest is that there was no evidence of a 'revenge' motive in any of the responses. The following extract expresses this fear:

"I believe that what is happening in Rhodesia and South West Africa is going to happen here after those countries have won their liberation. Incessant terrorism is going to take place along with urban terror. Worst of all we are all going to suffer and the ensuing collapse of the economy will also lead to famine and starvation and disease. Government stubbornness is also uniting our brothers inside and outside the country."

B.A., Female.

A similar understanding and sentiment is reflected in this extract:

"I think politically Whites are totally not prepared to share ideas with Blacks, so presently I don't think there stands a chance of changes. NO. The same with social changes. As long as the government is under White domination then there totally won't be any change whatsoever. Economically South Africa is heading for a disaster because other countries are totally against the policy of S.A. Don't expect anything good from the present S.A. government. Only disaster and I emphasise ONLY DISASTER is facing all of us. I hope I can find solace in a neighbouring country."

B.Sc., Male.

These ...

These two extracts reflect an acute awareness of the current situation facing South Africa whether one agrees or disagrees with the sentiments expressed. Furthermore, there is no evidence that the education they have received, which they reject as one which "... *is like poison destroying our minds*", has in fact managed to achieve this end.

There remains the hope that changes will come; the dismantling of Apartheid and the Homelands policy, the removal of all discriminatory legislation and equal opportunity to share fully the making of the future. But pervading the responses is a sense of despair. This is very clearly reflected in the following extract:

"We, Black people, have been promised by previous governments and the present one a GREAT DEAL. We anticipated some real progress, and what did we end up being given? Homelands, puppets, stricter vagrancy-pass laws. Every change that has happened in this country has been from bad to worse. Now my present generation does not feel that the future is full of roses, but full of rifle butts and charred remains of what was one's law-abiding citizens. This is not a foreboding premonition, but the political change that's creeping up in this country. The social and economic changes will be dictated by the political attitude then. Now, all we can do, is wait for the political upswing when we'll have no choice but to pay with our blood for our survival. I'm not a communist nor do I advocate or wish to see violence since I have already seen too much of it. But things are changing for the worst but out of it must come a brighter future."

B.Sc., Male.

Degenaar (1977), in referring to the present political dispensation in South Africa, has spoken of 'institutionalised violence'. A large number of responses including those already quoted refer to the need for human dignity and the need for whites to recognise blacks as human beings. The impression gained from the responses is that Apartheid has had the effect of destroying the black man's self-concept. Nevertheless, these students seem determined to assert themselves, to rid themselves of their negative conceptions of themselves, to show their self-awareness and to reject anything designed to denigrate or humiliate them. This is not unusual for people in this position. Whilst Edelstein (1972) found that only 2% of his matriculants

were ...

were ashamed of being black, some 17% preferred to live under a white government. Not one respondent in my sample accepted this.

As the Financial Mail (1976) put it following the Soweto riots:

"A new generation has now grown up. Unlike many of their parents, who have developed an attitude of fatalistic resignation to second-class citizenship, these younger men and women are impatient, radical, militant, brace and proud."

Quoted in Kane-Burman (1978).

From the evidence I have gathered there appears to be a confidence, given them by their educational status, in their ability to cope with the future. This seems to co-exist with a fear for the consequences of intransigence by the South African Government, and an unquestioned acceptance of the principle of a single yet shared (with the whites) future in which the governing criteria in politics and the economy will be merit alone. The expectation is that they too will share in the rewards they see accruing to educated people. There seems no evidence of what Guzana (1978) calls a

"... counter-arrogance born of frustration and despair manifesting itself in rejection and exclusivity in emphasis on black identity to measure up to and counterbalance the arrogance of the White South African."

What is uncertain, however, is whether this is because these students have already opted out of the struggle they refer to or the oppression they abhor. They occupy an elite position and recognise what they are likely to lose should a socialist-type revolution engulf South Africa.

There is then a demand that they should be masters of their own country. This is not interpreted as a Homeland, but South Africa. There is equally a demand for dignity which requires them to be free of social, economic and educational inferiority. The contradictions implicit in their attendance at an Apartheid university are, therefore, recognised although, as I have pointed out, they are difficult to recognise.

A fourth generalisation which it is possible to make from the responses and the clusters is that the economic and social gains which are believed to accrue from a good education are threatened by uncontrolled population growth. This is somewhat surprising for whenever the issue of birth control has been raised before the men, in particular, have maintained that it is a political device to keep the black population down. It has also been

suggested that in raising this issue I was in danger of casting aspersions on their virility or manhood. The fact that nearly 30% of the students have raised this issue particularly as it is likely to affect their economic status is an indication of their perceived higher social status. That nearly 20% more women than men raised this issue is perhaps an indication of the changing expectation of black women. Whether the men see this drift in the same way as the women is not known, but perhaps increased emphasis on demography and ecology in schools could account for this additional concern.

4.5 CONCLUSION:

Three major observations are possible from the responses. First there is the belief:

- that learning, knowing, understanding and thinking 'civilize'; that education, the cultivation of the human mind, is the foundation of a good and economically productive society;
- that such changes that are envisaged are seen essentially as political changes; the equitable allocation of resources and the redistribution of power;
- that from such changes economic advantages will accrue to all people irrespective of race or colour;
- that these economic and social gains are threatened by uncontrolled population growth.

Second, there exists a range of feelings concerning their future and the immediate future of South Africa.

Third, there exists an awareness of the opposing or contradictory functions of the university.

How these values pervade the teaching-learning situation, their import on scholarship and the consequential mismatches in expectations forms a major theme in chapters five and six.

TABLE I

<u>REASON</u>	<u>% STUDENTS IDENTIFYING THIS REASON</u>
1. Gaining knowledge/acquiring professional skill/gaining a degree	86%
2. Welfare of mankind/upliftment of fellowmen	74%
3. Better employment prospects/higher standard of living/security	73%
4. Financial rewards/financial security	71%
5. Status	71%
6. Parental pressure/aspiration, teacher pressure	56%
7. Intrinsic interest in subject/higher academic goal/to be educated in the broadest sense	35%
8. Opportunity for wider social intercourse	34%
9. Opportunity to exercise leadership/to be free from supervision	29%

TABLE 2

STUDENTS' VALUE CLUSTERS AND INTERSECTS

	<u>N</u>	<u>% of Sample (N = 220)</u>
<u>1. Reward Values</u>		
1	24	9.5%
1 2	78	35.5%
1 3	6	2.7%
1 4	6	2.7%
1 2 3	37	16.8%
1 2 4	5	2.3%
1 3 4	15	6.8%
1 2 3 4	0	0
<u>TOTAL</u>	171	78.6%
<u>2. People Centred Values</u>		
2	6	2.7%
2 1	78	35.5%
2 3	12	5.5%
2 4	11	5.0%
2 1 3	37	16.8%
2 1 4	5	2.3%
2 3 4	13	5.9%
2 3 4 1	0	0
<u>TOTAL</u>	162	73.6%
<u>3. Autonomy Values</u>		
3	4	1.8%
3 1	6	2.7%
3 2	12	5.5%
3 4	0	0
3 1 2	37	16.8%
3 1 4	15	6.8%
3 2 4	13	5.9%
3 4 2 1	0	0
<u>TOTAL</u>	87	39.5%
<u>4. Self Expressive Values</u>		
4	3	1.3%
4 1	6	2.7%
4 2	11	5.0%
4 3	0	0
4 1 2	5	2.3%
4 1 3	15	6.8%
4 2 3	13	5.9%
4 3 2 1	0	0
<u>TOTAL</u>	53	24.0%

represents : Intersect

TABLE 3

STUDENTS' VALUE CLUSTERS AND INTERSECTS

	<u>N</u>	<u>% of Sample (N = 744)</u>
1. <u>Reward Values</u>		
1	48	6.5%
1 2	319	42.9%
1 3	16	2.2%
1 4	11	1.5%
1 2 3	94	12.6%
1 2 4	42	5.7%
1 3 4	21	2.8%
1 2 3 4	0	0
<u>TOTAL</u>	551	74.1%
2. <u>People Centred Values</u>		
2	31	4.2%
2 1	319	42.9%
2 3	11	1.5%
2 4	0	0
2 1 3	94	12.6%
2 1 4	42	5.7%
2 3 4	38	5.1%
2 3 4 1	0	0
<u>TOTAL</u>	535	71.9%
3. <u>Autonomy Values</u>		
3	17	2.3%
3 1	16	2.2%
3 2	11	1.5%
3 4	0	0
3 1 2	94	12.6%
3 1 4	21	2.8%
3 2 4	38	5.1%
3 4 2 1	0	0
<u>TOTAL</u>	197	26.5%
4. <u>Self Expressive Values</u>		
4	23	3.1%
4 1	11	1.5%
4 2	0	0
4 3	0	0
4 1 2	42	5.7%
4 1 3	21	2.8%
4 2 3	38	5.1%
4 1 2 3	0	0
<u>TOTAL</u>	135	18.2%

TABLE 4

STUDENT EMPHASES

	<u>N</u>	<u>% of Sample</u>
<u>Economic:</u>		
1	21	2.8%
1 2	276	37.1%
1 3	51	6.8%
1 4	0	0
1 2 3	56	7.5%
1 2 4	229	30.8%
1 3 4	46	6.2%
1 2 3 4	0	0
<u>TOTAL</u>	679	91.3%
<u>Political:</u>		
2	29	3.9%
2 1	276	37.1%
2 3	12	1.6%
2 4	17	2.3%
2 1 3	56	7.5%
2 1 4	229	30.8%
2 3 4	43	5.8%
2 3 4 1	0	0
<u>TOTAL</u>	662	88.9%
<u>Demographic:</u>		
3	13	1.8%
3 1	51	6.9%
3 2	12	1.6%
3 4	0	0
3 1 2	56	7.5%
3 1 4	46	6.2%
3 2 4	43	5.8%
3 1 2 4	0	0
<u>TOTAL</u>	221	29.7%
<u>Education:</u>		
4	76	10.2%
4 1	0	0
4 2	17	2.3%
4 3	0	0
4 1 2	229	30.8%
4 1 3	46	6.2%
4 2 3	43	5.8%
4 1 2 3	0	0
<u>TOTAL</u>	411	55.2%

TABLE 5

<u>CONTROVERSIAL ISSUES RAISED</u>	<u>PROPOSED SOLUTION</u>	<u>FUTURE CHANGES</u>
<u>Economic</u>		
<ul style="list-style-type: none"> - unemployment - unequal pay - low wages - unequal opportunities - inflation - costs of implementing apartheid/separate development - dishonesty and corruption in government 		
<u>Political</u>		
<ul style="list-style-type: none"> - Apartheid/Separate Development - discrimination/pass laws - lack of political representation - Group Areas Act - detentions and bannings - job reservation - Immorality Act 	<p>Removal of all discriminatory legislation; political, economic and social.</p> <p>Proposed ways and means to such changes.</p>	<p>Consequences of action:</p> <ul style="list-style-type: none"> - danger of internal rebellion - general optimism/pessimism for the future.
<u>Demographic</u>		
<ul style="list-style-type: none"> - Group Areas Act - population explosion - housing shortages - squatting 		
<u>Education</u>		
<ul style="list-style-type: none"> - Bantu Education - lack of compulsory education - inequalities in educational provision and quality - separate universities 		

FOOTNOTES

- (1) cf. Becker, H.S. et al, 1964 & 1968; Perry, W.G., 1968; Snyder, B.R., 1971; Parlett, M. & King, 1971; Abercrombie et al, 1969; Walker, 1970.
- (2) See, for example, Ben-David, 1977; Van der Merwe and Welsh, 1977.
- (3) See, for example, Shingler, 1972; Van der Merwe and Welsh, 1977; Millar, 1976.
- (4) To an increasing extent staff are aligned with the administration, who in turn are seen as an extension of the government's policy of Apartheid in the eyes of the students. Whether this be an accurate perception or not, in times of campus unrest black and white staff of whatever political inclination are seen as representatives of the institution.
- (5) Of the studies which have a direct bearing on this one, I found the following most valuable.
- (i) South Africa: Sociological Perspectives, H. Adam (ed), London, O.U.P. 1971.
 - (ii) The Future of the University in Southern Africa, H. Van der Merwe & D. Welsh (eds), Cape Town, David Philip, 1977.
 - (iii) Various papers and books by Eric Ashby.
 - (iv) "The Non-White Universities of South Africa", by E.G. Malherbe, in Reality, Vol.1, No.6, 1970.
 - (v) "Education and Political Order in South Africa, 1902-1961", by D. Shingler, unpublished Ph.D. dissertation, Yale University, University Microfilms HAF 74-11883.
 - (vi) Leonard, L.D. (1970), Apartheid and Education in the Republic of South Africa. Unpublished doctoral dissertation, Utah State University.
 - (vii) Robertson, I.A. (1973), Education in South Africa: A Study on the Influence of Ideology on Educational Practice. Unpublished doctoral dissertation, University of Harvard.
- (6) This is not to dismiss the efforts made by SASO during the early 1970's to close the black universities. cf. Alice Declaration, May, 1972.
- (7) A common Medical Aid or pension scheme. Also married white staff receive a R480,00 a year 'territorial allowance' for the 'inconvenience' of teaching in a black campus.

- (8) This does not apply to the 'coloureds' or Indians.
- (9) L. Sebe, 1979, Daily Dispatch Report, 14th May 1979, p.7.
- (10) During 1977/78 an attempt was made by the Department of Teaching Science (Subject methods training) to expand its scope to involve itself in wider curricula research, especially as it concerned black school education with its adherence to 'white' school syllabi. The move was vetoed by the Minister on the recommendation of the all-black advisory council. Critics of this advisory council would argue that the members are government stooges. I suggest this is too simple an explanation.
- (11) The South African Government's justification and description of its non-white university system is outlined in Education for Success, Pretoria, Department of Information.
- (12) See, for example, Bolton, 1967; Hoge, 1971; Jonassen, 1972 and Lipsett, 1972.
- (13) Goldthorpe, 1965; Drake, 1968; Klineberg, 1969; Court, 1973; Hanna, 1975 and Prewitt, 1975.
- (14) Students assert that they are reported for discussing controversial political issues, for raising sensitive questions in the classrooms, and even for listening to foreign radio stations. There is a strong belief that students are paid to spy on one another although this is frequently denied by the university authorities and government officials. In addition students complain of their mail being opened and of being warned of the consequences of involving themselves in any political activity which is critical of the status quo.
- (15) Proclamation R252 of 30th September, 1977, enables the security police to detain a person without trial for 90 days. Redetention following the expiry of the initial and/or subsequent periods is provided for. This draconian legislation is, with some justification, greatly feared.
- (16) It was stressed that certain phrases hold a high political currency. For example, 'The South African situation' refers to Apartheid. I realised that objections may have been made by the University

authorities ...

authorities had I baldly asked students to comment on the system of Apartheid. My thanks are especially due to Professor Clive Millar, Professor Michael Ashley, Mr Sipo Makalima, Mr Theo Maqashalala and Mr Zama Gebeda for comments in this connection.

- (17) See any South African Institute of Race Relations Annual Survey for current drop-out rates.
- (18) The unemployment rate among blacks is extremely high: Simkins, 1978, estimates that in 1977 it was as high as 26%. The level of economic disparity was shown by a Ford Foundation study as 16.3% of national income accruing to 60% of the population. 60% of these were black (Jarvis, 1973).
- (19) See Davis, 1978, on the 'devices' used to protect white privileges.
- (20) I am indebted to Messrs Maqashalala and Somhlahlo of the Department of Social Work, and to Mrs L. Molamu of the Faculty of Education for offering this explanation.
- (21) The black universities all offer what is called a one year pre-medical course after which students transfer to the newly established medical university for blacks (MEDUNSA). As places are limited at MEDUNSA restrictions on entry are placed on students here.
- (22) On 19th October, 1978, the Minister of Justice issued proclamations banning the South African Students' Organization (SASO), the Black People's Convention (PPC) and the South African Students' Movement (SASM). All were representative of the 'Black Consciousness' philosophy. The bannings have meant that I am unable to ask students specifically about their allegiances. Nevertheless, a mood of assertiveness is evident in the responses and can be taken as an indication of the existence of this philosophy. The 1976 disturbances have inevitably had a dynamic politicising effect.
- (23) This is far too extensive to list but the following are of value:
 - (i) The publications of The Christian Institute, The Sprocas Reports, The South African Institute of Race Relations, The South African Foundation, The Department of Information and the South African Bureau for Racial Affairs provide current and up-to-date material.

- (ii) Regarding black adolescents, the studies of Danziger, 1958, 1963; Bloom, 1960; Musgrove, 1962, and more recently, Edelstein, 1972 and Tunmer, 1972, are noteworthy.
- (iii) Studies of students in the rest of Africa are quite extensive. See, for example: Ashby, 1964 & 1966 ; Clignet & Foster, 1964 & 1966; Coleman, 1965; Drake, L., 1968; Goldthorpe, 1965; Klineberg & Zavalloni, 1969; Van den Berghe, 1973 ; Marvick, 1965; Prewitt, 1975; Hanna, 1964 & 1975. & Shils, 1962.

CHAPTER FIVEREASONS FOR POOR ACADEMIC PERFORMANCE

5.1 Problems perceived by the first year students

5.1.1 Introduction

5.1.2 Method

5.1.3 Problems identified by students: Description of Table 1

5.1.3.1 Problems arising from students' own ability and behaviour

5.1.3.1.1 Insecurity and anxiety about own ability

5.1.3.1.2 Inability to cope physically with the required amount of work

5.1.3.1.3 Inadequate comprehension and inability to communicate freely
in English or to use English as a medium

5.1.3.1.4 Poor study habits and study skills

5.1.3.1.5 Poor test/exam techniques

5.1.3.2 Problems arising from subject choice and lack of counselling

5.1.3.2.1 Lack of knowledge about individual subjects

5.1.3.2.2 Lack of knowledge of what it takes to learn and how to study
at university

5.1.3.2.3 Inadequacy of the first year orientation week

5.1.3.3 Problems arising from the gap between school and university

5.1.3.3.1 Difficulties in adjusting to university work and study methods

5.1.3.3.2 Difficulties in coping with different teaching styles

5.1.3.3.3 Difficulties in coping with the different academic demands

5.1.3.3.4 Social problems associated with the transition from school to
university5.1.3.4 Problems created by adverse physical and social conditions on
the campus

5.1.3.4.1 Noise in residences

5.1.3.4.2 Dislike of having to share rooms

5.1.3.4.3 Lack of facilities for normal social activities

5.1.3.4.4 Lack of heating during winter

5.1.3.4.5 Inadequacies in the Library

5.1.3.5 Problems related to the assessment and testing procedures of
the university5.1.3.5.1 Failure of lecturers to make examination and test requirements
explicit

5.1.3.5.2 Panic about the first test counting towards the year mark

5.1.3.5.3 Inability to write and think fast enough

5.1.3.5.4 Lack of sufficient preparation time between tests

- 5.1.3.5.5 Number of tests
- 5.1.3.6 Problems related to the students' perception of staff attitudes towards them
 - 5.1.3.6.1 Poor teaching strategies and techniques on the part of the lecturer
 - 5.1.3.6.2 Lack of empathy with students on the part of the lecturer
- 5.1.4 Discussion

- 5.2 Problems perceived by the staff
 - 5.2.1 The questionnaire study
 - 5.2.1.1 Introduction
 - 5.2.1.2 Method
 - 5.2.1.3 Findings and Responses
 - 5.2.1.4 Discussion
 - 5.2.2 Evidence from staff interviews
 - 5.2.2.1 A basis for enquiry
 - 5.2.2.2 Problems encountered
 - 5.2.2.3 The lecturers' views
 - 5.2.2.3.1 Introduction
 - 5.2.2.3.2 Problematic Issues
 - 5.2.2.3.2.1 The nature of the demands of a university education and of their (staff and students) respective expectations
 - 5.2.2.3.2.2 The nature of the students' pre-university experiences
 - 5.2.2.3.2.3 The nature and implications of the assertion that students lack a commitment to certain academic ideals
 - 5.2.2.3.2.3.1 Introduction
 - 5.2.2.3.2.3.2 What staff understand by commitment
 - 5.2.2.3.2.3.3 Why commitment is seen to be withheld
 - 5.2.2.3.2.3.3.1 Cultural alienation and the sense of cultural deprivation
 - 5.2.2.3.2.3.3.2 The impact of the context
 - 5.2.2.3.2.3.3.2.1 The 'double-bind' situation
 - 5.2.2.3.2.3.3.2.2 A lack of trust
- 5.3 Conclusion

CHAPTER FIVE

REASONS FOR POOR ACADEMIC PERFORMANCE

In chapter one I pointed out that it was the failure rate at the end of first year which gave rise to this study. It was suggested in chapters two and four that any study of the students' experience of academic life needed to consider the students' perceptions of the learning milieu and of learning in general. The overriding question is why is there this high first year failure rate.

It is, therefore, the purpose of this chapter to examine the problems identified by the students over the three years and those perceived by the staff.

5.1 PROBLEMS PERCEIVED BY THE FIRST YEAR STUDENTS

5.1.1 INTRODUCTION

The new student, whatever his background, generally finds some problems in the transition from school to university. Lack of experience in working on one's own, in making new friends, in determining and maintaining a study schedule, in taking or making notes, in knowing what is expected of one, in physically finding one's way around the campus, in acclimatising to the laissez-faire environment, are all possible areas of difficulty and strain. During the 1976, 1977 and 1978 academic years successive groups of first year students were asked to describe:

"... any difficulties (work and other difficulties) you may have experienced in your first few months at university and to suggest possible reasons for them".

The total sample of one thousand three hundred and forty-six students⁽¹⁾ were drawn from all the faculties except theology and agriculture. The reason for leaving them out was the small numbers involved in these faculties and as the replies were written in class time I chose classes with the largest possible numbers.⁽²⁾ Only first year students in these classes were asked to write the essay. In an effort to encourage the

students ...

students to be as frank as possible, they were given the option of whether or not to divulge their names. Some 43% preferred to remain anonymous. As with the responses described earlier there remains the possibility that perceived problems are exaggerated and that students told me what they perceived I ought or wanted to know. This is difficult to avoid or detect but the size of the sample and the similarities in the responses between males and females over the three years would seem to reduce the possibility of exaggeration. The fact that very few students in the 1978 groups emphasize the lack of facilities on campus for sporting and social activities is evidence of the marked improvements in sporting and social facilities on the campus, and would, I suggest, also be an indication of the balance of the responses. Similarly the quality of food became less of an issue.

I have not set out to 'judge' the validity of the reported problems, however, the problems identified by the students are real to them and reflect the opinions of students over three years. Certain consistent patterns emerged. I was interested primarily to record what first year university students report to be the difficulties they are experiencing.

As I have pointed out in the introduction, the university is a residential one with the majority of students accommodated on campus and with everybody living and working under the same conditions - the same access to the library, books, help from staff and any other contributing factors. Although many of the students' parents are literate their educational environment at home is frequently inadequate judging it by the demands of the university. English is used as the medium of instruction at the university and this is a second language to the students. An indication of the linguistic handicaps faced by the newly arrived student emerges from the findings of a study of Black students and the study of English by Proctor and Verschoor (1976). They found that apart from the prescribed books which had been read for the matriculation examination ...

"... Black students reach university and register for courses in English with very little reading or literary experience behind them. Answers to questions relating to the number of works of fiction and non-fiction read in addition to prescribed works, indicated that more than half of the two groups tested had read fewer than ten works of fiction in the four years prior to leaving school."

Menasche (1976) in a study at the University of Rhodesia came to the conclusion that failure in examinations could be attributed by and large to language deficiencies.

5.1.2 METHOD

This part of the study relied on the analysis of short essays written by the students in response to the open-ended question quoted above and on interviews with students. Initially students' written replies were read and a preliminary content analysis was undertaken. Difficulties were noted and the frequencies tallied. Where problems appeared very similar they were combined. Finally specific problems were isolated, numbered and listed (Table 1). An attempt was then made to group these difficulties into certain categories to provide for a more comprehensive analysis. As no marked sex or faculty differences appeared the responses from all students were combined. Six major categories of difficulty emerged. These related to:

- A: Problems Arising from Student's own Ability and Behaviour;
- B: Problems Arising from Subject Choice and Lack of Counselling;
- C: Problems Arising from the Gap between School and University;
- D: Problems Created by Adverse Physical and Social Factors on the Campus;
- E: Problems Related to the Assessment and Testing Procedures of the University;
- F: Problems Related to the Students' Perception of Staff Attitudes towards Them.

The problems identified by the students were then classified according to the categories A to F. It was inevitable that certain problem items fitted into more than one category, since in any study of this nature complex inter-relations occur. To simplify matters a diagrammatic summary was used to illustrate how the categories of difficulty overlap and the position of specific problems within this framework. (Fig. 1). (page 252).

5.1.3 PROBLEMS IDENTIFIED BY STUDENTS: DESCRIPTION OF TABLE 1 *

In order to clarify the nature of the specific problems table 1 is expanded below to include a description of each problem.

5.1.3.1 Problems Arising from Students' own Ability and Behaviour (fig.1A)**

* Page 246.

** Page 252.

5.1.3.1.1 ...

5.1.3.1.1 Insecurity and anxiety about own ability

Students reported being unsure of their ability to cope with the work and having a fear of failure. Losing confidence after a poor test result and being anxious and panicking during tests were also seen as important factors affecting performance.

5.1.3.1.2 Inability to cope physically with the required amount of work

Students reported being exhausted after lectures and practicals and so were unable to work efficiently at night. Others reported being unable to concentrate during lectures after working late at night.

5.1.3.1.3 Inadequate comprehension and inability to communicate freely in English or to use English as a medium

This problem appears to be the source of many others and students reported difficulty in expressing themselves adequately, orally and in writing, in English and in understanding written English. In lectures difficulties associated with knowing what to include or exclude, whether to write down everything the lecturer says or what is important or unimportant, places the student under a severe handicap. Difficulties related to the use of English particularly when it is necessary to analyse, extrapolate or evaluate information using their own words, were widely reported. Difficulties in keeping up with required reading and in using more than one reference work were ascribed to slow reading skills and inadequate comprehension skills. Students reported rewriting their lecture notes into their mother tongue in order to facilitate comprehension, and on their reliance on memorization of prepared notes for tests or examinations rather than to have to use their own words.

5.1.3.1.4 Poor study habits and study skills

The reported difficulties are invariably closely tied with the problems in point 3. Difficulties in making or taking of notes, in synthesizing information from various sources, in reading regularly and keeping up required reading, in writing assignments and in analysis and selection, have their antecedents in the linguistic handicaps of the students. Incorrect study habits and skills were picked up yet used successfully at school. At school rote memorization of teachers' notes usually brought academic success, and these habits or strategies of learning were internalized. Other incorrect practices identified by the students were not planning and organizing work adequately, and an inability to plan time efficiently and to use it effectively. A common problem reported was that

of accomplishing very little in relation to the amount of time spent studying. This is related to difficulties associated with having to work consistently. Students reported memorizing material especially if the work was not understood or difficult and relying solely on lecture notes for tests. Others admitted not following up references given in lectures. The problems are exacerbated by the students' reluctance to ask for assistance. This too was acknowledged.

5.1.3.1.5 Poor test/exam techniques

Tests and examinations seem to assume gargantuan proportions. (See Problem Area 5.1.3.5 (E)). Difficulties and problems reported by students included being unsure of what was required of them for tests and in tests and being unsure of what to expect in the papers. Problems such as finding their minds going blank when seemingly unfamiliar questions appear on the question paper, panicking when faced with a difficult question, scoring lower marks than expected because they either did not answer the question posed, or did not learn the right work or memorized it without understanding it or because they did not plan their work carefully enough and so did not finish the paper, are commonly reported and reflect poor technique and poor study and work habits.

5.1.3.2 Problems Arising from Subject Choice and Lack of Counselling (fig.1B)

5.1.3.2.1 Lack of knowledge about individual subjects

Students reported a lack of knowledge of the content and nature of many "new" (in the sense that they were not part of the school curriculum) courses and necessary previous knowledge or experience which is required for a course. Knowledge concerning university ancillary requirements is also limited. Ignorance of the job opportunities related to and the "usefulness" of courses is also evident from the replies.

5.1.3.2.2 Lack of knowledge of what it takes to learn and how to study at university

Student responses reflected poor study habits and skills, inadequate test and examination technique and lack of knowledge of what was required and expected of them. (Points 1.4, 1.5 & 2.1). The study strategies adopted appeared to place much emphasis on the need to recall information often in precisely the same form in which it was given to them. This assumption was quite prevalent and students reported difficulty in fulfilling this "requirement".

5.1.3.2.3 Inadequacy of the first year orientation week

Students reported difficulty in understanding and seeing the relevance of much of what was said. Lecturers who spent more time "selling" their courses and not enough time describing them were harshly criticised. Students felt they were being talked at and did not feel actively involved. Fear of asking questions in front of such a large crowd inhibited many. Students were critical of the fact that the aptitude tests were written after they had registered and that the results of these tests appeared to be of little value to them. Requests were made for a more meaningful orientation week and in particular for lectures on: university study methods; how one learns; how to write assignments and how to use information and present the whole in an academically acceptable form; university teaching methods and how to use lectures, seminars and tutorials; using the library and university assessment procedures. These points are reflected in many of the other specific problem areas.

5.1.3.3 Problems Arising from the Gap Between School and University (fig.1C)

5.1.3.3.1 Difficulties in adjusting to university work and study methods

These problems are reflected in the poor study habits and study skills and the problem arises mainly from the fact that success is achieved through rote learning of notes usually prepared for them by the teacher at school. Students report on this and on the reliance on supervision and spoonfeeding which characterised their learning at school. From their comments it appears that students are ill prepared to meet the academic demands of the university.

5.1.3.3.2 Difficulties in coping with different teaching styles

The classical form of instruction at the university is the lecture method. Reported difficulties of students in lectures arise mainly from linguistic weaknesses and because of poor work and study skills and habits. Confusion is caused however by differing expectations, demands and teaching styles of the lecturers. Such problems as whether or not to listen or copy down main points only or all that is being said, how to use lecture material particularly for revision, and how to use information and to present it in an acceptable form often stem from differences in demands, and cause anxiety and problems.

5.1.3.3.3 Difficulties in coping with the different academic demands

The amount and greater depth of work studied also creates problems (points 1.3, 1.4, 1.5, 2.2, 3.1). The need to work consistently, hand in work punctually and to keep up with required reading in order to cope with regular testing is foreign to most students who have been used to a system where promotion depended on a final examination only. Once again poor study habits and work skills and the linguistic handicaps of the students reflect this problem.

5.1.3.3.4 Social problems associated with the transition from school to university

Students reported difficulties in adjusting to university life. The increase in social opportunities, the problems of deciding what is socially acceptable, and the difficulty of finding good friends in residence were key problem areas. Loneliness, loose-living and drunkenness were singled out as major issues. Worry existed about money for fees, books, clothes, entertainment and transport. Being treated as an adult and as an individual that matters also appears to create confusion. This role confusion is further exacerbated by what students experience off the campus in contrast to what they experience on campus. Students comment on the fact that white staff address them as Mr or Miss and they are treated as "equals", whereas off the campus they are treated very differently and have to play different roles.

5.1.3.4 Problems Created by Adverse Physical and Social Conditions on the Campus (fig.1D)

5.1.3.4.1 Noise in residences

Students reported they found great difficulty in working and concentrating in the residences because of the continual noise. They attributed this to a selfish attitude on the part of many students, particularly those not interested in working, to poor control of students by those in authority, to the necessity of having to share rooms where not everyone wanted to work at the same time and to the tendency on the part of students to enjoy listening to very loud music.

5.1.3.4.2 Dislike of having to share rooms

Students reported that as first years they were sometimes obliged to share with up to three other students. In those cases reported the major complaint was that incompatibility led to much anxiety and unhappiness. Lack of privacy which resulted from sharing was much resented.

5.1.3.4.3 Lack of Facilities for normal social activities

Students in the 1976 and 1977 groups reported that there was nowhere on the campus where they could talk comfortably with the opposite sex. In addition there was nowhere except a few low grade cafes in town where they could buy cooked food. The need for a social recreational centre was widely expressed. The marked improvements in facilities during late 1977 and 1978 seems to be reflected in the relative absence of comments relating to this with the 1978 groups.

5.1.3.4.4 Lack of heating during winter

Students reported that in winter the only place to get warm was in bed and that that was not conducive to work. They strongly criticised not being allowed heaters in their rooms and the lack of heating in the library.

5.1.3.4.5 Inadequacies in the Library

Students strongly criticised the library facilities. As many students have come from schools which do not have library facilities they found difficulty in finding their way around the library and in using the catalogues and indexes. Their book education appears to be totally inadequate. Students reported difficulties in finding books because the books are not shelved in numerical order, because there are no subject markers or catalogue numbers on the sides/ends of the shelves and because books listed in the catalogue are not always found in the right places on the shelves. Students complained that personnel at the control desk were unwilling to tell students if a book not on the shelf had been borrowed or not. Students felt there are not enough up to date reference books in simple English and at first year level; they resented not being allowed to take textbooks into the library as this was the only quiet place suitable for work at night. Students also felt there were not enough copies of key reference books available for assignments and that it was often very difficult to get a book even if it was officially on reserve. Lecturing staff were criticised for having much needed reference works on their own shelves as it appeared to students that the library staff were not as strict about getting them back as they were in the case of students.⁽³⁾

5.1.3.5 Problems Related to the Assessment and Testing Procedures of the University (fig.1E)

5.1.3.5.1 ...

5.1.3.5.1 Failure of lecturers to make examination and test requirements explicit

Students reported that at the beginning of the first year they had no idea of the standard of work which a lecturer required, whether he only wanted his own notes repeated in a test, whether there would be a mark for each fact, whether ten lines or ten pages were required. Standards and criteria were not made explicit. Students felt they should be given credit for any information they put down rather than be "tricked" into showing what they do not know.

5.1.3.5.2 Panic about the first test counting towards the year mark

Students were concerned that their first test should count sometimes as much as 25% of their year mark, when they have not yet any experience of university standards or requirements. There exists gross ignorance and hence many inaccuracies about the year mark system, but these create much anxiety.

5.1.3.5.3 Inability to write and think fast enough

This is closely allied to the students' linguistic handicaps. In addition students report that at school they were praised for neat handwriting and that teachers dictated notes slowly. They point out that they have little experience of writing rapidly and feel that they lose marks for not finishing their work.

5.1.3.5.4 Lack of sufficient preparation time between tests

Students reported difficulty in doing justice to all four or five subjects when tests were close together. This is another example of problems reflected in point 1.4.

5.1.3.5.5 Number of tests

Students reported that there were too many tests and that they did not have time to read for enjoyment or greater understanding. They feel that too much time is spent having to memorize notes and sections of the textbooks for the next test. They were particularly critical of lecturers who only wanted their own notes recalled. They felt that by learning in this way they did not come to understand the content and soon forgot it after the test. The consensus opinion was that the key to success was an ability to memorize what the lecturer had given them.

5.1.3.6 ...

5.1.3.6 Problems Related to the Students' Perception of Staff Attitudes Towards Them (fig.1F)

5.1.3.6.1 Poor teaching strategies and techniques on the part of the lecturer

Students reported that lecturers expected them to memorize a great deal of information much of which appears to them to be irrelevant for understanding the subject matter. Many experienced difficulties in this regard. Lecturers were criticised for dictating notes rapidly, sometimes directly from the prescribed textbook and without explanation. Students complained that their lecture notes are often unintelligible to them after the lecture. There is further criticism of lecturers who refuse to answer questions during lectures and students admit being reluctant to consult privately with the lecturer because they fear an unsympathetic hearing. Lecturers were criticised for not speaking clearly, audibly and simply and students reported having to concentrate more on understanding the language of the lecturer than on the content. It would appear that very few lecturers use audio-visual aids and students are critical of the "lock-stepping" of assignments by lecturers resulting in tremendous pressure on the reference books in the library. Feedback after assignments is unconstructive and students report that only rarely are they shown how and why they have gone wrong or achieved poor marks and shown how to correct their weaknesses. The appeal for the presentation of "the" study method which will solve all problems was frequent.

5.1.3.6.2 Lack of empathy with students on the part of the lecturer

Students reported that they were made fun of ("mocked") by some lecturers if they asked questions or equally if they could not answer questions. Students reported feeling completely demoralized by lecturers threatening that at least 50% of the class would fail. Students felt that certain lecturers looked down on them and thought that lecturers felt they were making a personal sacrifice by teaching black students. Lack of individual attention, not being known by name and being patronised were highlighted as major sources of concern. Students regarded it as the duty of the lecturer to teach them what they needed for their future careers. Replies also revealed that students were particularly sensitive about not being respected, and criticism was levelled at those lecturers whom the students believe refuse to accept different ideas because they come from black people.

5.1.4 DISCUSSION

Figure 1 summarizes the inter-relationships between the main problem areas identified by the students in their first year of study. The findings reported in chapter four should be seen as a backdrop against which to consider these problems. The utilitarian conception of knowledge and of the university, the anxiety associated with the fear of failure and insecurity experienced by students, place these problems in a particular reality.

The achievement motivation factor is extremely strong and it is against a background of extreme odds that a student has got to university. His parents and friends have made great sacrifices to provide this opportunity and the student is only too aware of this.

So one finds for example criticism of the emphasis on memorization is not on the grounds that it is necessarily a bad teaching/learning strategy but because difficulties associated with the strategy could result in failure. This is similar to the cry - 'give us the facts in manageable proportions and we will learn (memorize) them'. As far as the students' replies are concerned, the lecturer's role appears to be that of a dispenser of knowledge and information. The call for a "fail proof" study work method emphasizes this simplistic view of education held by many first year students. It is interesting to note that whilst 38% of students were concerned about their lack of knowledge about the nature and content of a subject, 73% were concerned about their lack of ability to study any subject at the university. The emphasis seems to be on how to study to pass and not on what to study. This view is created by the school and is reinforced by the demands of black society. Whilst linguistic handicaps and problems are identified the plea is not for assistance to overcome these problems but requests to help find a suitable and effective study method for them. Student expectations of success on arrival at the university are very high as these students are a highly selected group who have been nurtured in expectations by their parents and teachers. Their immediate confrontation with the academic standards and expectations of the university is a major factor in creating anxiety and self-doubt in their own ability to cope. Another dimension emerging from chapter four against which the responses should be viewed is the student's awareness of the political position of the Black man. He is aware of the fact that the worlds and experiences of whites and blacks differ widely. He is suspicious of the motives of Whites and as Nabe (1976) points out ...

"He ...

"he (the student) usually classifies whites into two groups, namely those with the racist attitudes and those with a paternalistic, patronising, condescending attitude. He is very sensitive to remarks that may be hurtful. He is more sensitive to treatment he regards as insulting, humiliating or any disregard of what he considers his right as a student."

As I shall indicate later, it is common for academic staff to blame a student's incompetence on the student's inability to cope and on such factors as poor study and work habits or sheer idleness. The evidence provided in figure 1 suggests differently. There are some problems which are created directly by the student's own inability or poor study behaviour. The only problems which fell entirely into this category were 1.1 and 1.2; viz. the students' insecurity and anxiety about their work and their physical inability to cope with long periods of studying. Problem area 1.3, the students' poor linguistic skill, was felt to be compounded by the much higher standards of English required at University in comparison to school, and by the form of tests and examinations which did not take these handicaps into sufficient account. This seems to be a major single problem having been reported by 68% of the students. The fact that most students have acquired only a poor proficiency in spoken English means that the involved patterns of the printed language in advanced texts are beyond their most diligent endeavours.

Problem area 1.4, poor study skills and work habits, are seen partly as arising from the students' own poor organizational and planning skills as well as as a result of inadequate or lack of training at school in those study skills and work habits required for successful university study. Some students are bewildered to find that their study skills and work habits which served them well at school cease to do so at university and lead them to think in terms of a "magic formula". Poor examination and test techniques (problem 1.5) as well as being part of the student's innate ability are worsened by lack of training at school and/or in the early weeks of university and by a lack of counselling in general. The emphasis and preoccupation with passing examinations (problem area 1.5) and the anxiety about how to learn and study (problem area 2.2) are closely related to obtaining a degree, but the desire to study as a means of discovery is not evident from the responses. Other problems were seen as arising directly from ignorance regarding subject choice and lack of counselling particularly in the early weeks of the new year and before arriving at university. 38%

identified problems in this area. Better career guidance at school could improve the situation. Ignorance of how to learn and study at university (problem area 2.2) greatly influences the student's own approach to study habits and skills. Some problems seen as arising from the gap between school and university are also seen as problems affecting success. These include difficulties in adjusting to university work and study methods, coping with different teaching styles and academic demands and the more general social problems in adjusting to university life. Over 60% of students reported difficulties associated with the academic demands of the university whereas only 22% reported social problems associated with the transition from school to university. Once again the emphasis and concern is with academic success.

While the majority of problems relating to adverse physical and social conditions on the campus (problem areas 4.2, 4.3, 4.4 and 4.5) were of a simple nature, the problem of noise in the residences was reported by 73% of students as being a reason for their inability to study effectively.

Anxiety about assessment permeates many of the students' responses.

Uncertainty about standards and criteria is blamed on the failure of lecturers to make standards and criteria explicit. Whilst the lecturer is also made the "whipping boy" in cases of failure, problems such as panicking, anxiety, the inability to think lucidly in English (problem areas 5.4 and 5.5), lack of preparation time and the inability to cope with the number of tests is really more of a behavioural problem.

The lack of empathy on the part of the staff towards the students was seen by them as directly influencing their performance and motivation. The students were also critical of some of the ways in which they were taught by the staff and 78% of students comment on this. "Single" unrelated problems appear to be those associated with the inadequacy of the orientation week, problems with the library, the dislike of having to share rooms, the lack of heating in winter and the lack of facilities for normal social activities other than sport.

On the whole it would seem that many students at the University of Fort Hare are victims of their educational, socio-economic and political circumstances. The need to study through a second language creates problems enough. Add to this the inadequate schooling experienced by black students and the political position they find themselves in and it is little wonder that despite being highly motivated even the academically able student is handicapped.

5.2 PROBLEMS PERCEIVED BY THE STAFF

As many of the problems cited by the students concerned the teaching/ learning situation it was decided to ask the academic staff to consider the importance of the reasons given by the students. Two procedures were adopted. First, a questionnaire was sent to academic staff and, as a result of what emerged, a sample of staff were interviewed.

5.2.1 THE QUESTIONNAIRE STUDY

5.2.1.1 INTRODUCTION:

In an effort to focus on and to identify problem areas related to poor academic performance of first year students a questionnaire was sent out to all members of the academic staff during the 1976 and 1977 academic years. Although the questionnaire was directed at academic staff responsible for teaching first year courses a number of staff not directly concerned, but nevertheless interested in the problem, also responded. A total of 75 staff members responded. Table 2* provides a summary of the respondees by faculty. The questionnaire (Appendix 4) comprised four sections:

Section A: A list of twenty factors which had been highlighted by students as influencing their academic performance. Staff were asked to indicate whether they thought the factor to be of major importance, minor importance or of no importance.

Section B: An open-ended section which permitted staff to identify additional problem areas which, in their opinion, influence student performance.

Section C: An open-ended section for ranking the top five major factors which in the opinion of the staff influence academic performance.

Section D: An open-ended section which permitted staff to make any recommendations towards improving student performance in their subject field.

5.2.1.2 METHOD:

Findings from the investigation of student study difficulties were used to prepare the staff questionnaire. The students identified problems related to six major categories:

* Page 248.

- A. Problems arising from student's own ability.
- B. Problems arising from subject choice and lack of counselling.
- C. Problems arising from the gap between school and university.
- D. Problems created by adverse physical and social factors on the campus.
- E. Problems related to the assessment and testing procedures of the university.
- F. Problems related to the student's perception of staff attitudes towards them, (cf Table 1)

For the staff survey the twenty most subscribed problem factors were used. For obvious reasons problems related to the physical and social environment on the campus were excluded (Category D) as this was not directly relevant to the problem being considered. Problems concerning the quality of teaching were also excluded from Section A of the staff survey as it was felt that where this problem is applicable, individual staff members should be free to identify it and make their own assessment of its relevance and/or importance (Sections B, C or D).

The twenty items listed in Section A of the staff questionnaire reflect problems related to the students:

- A. Work and study habits
- B. Linguistic skills
- C. Attitudes
- D. Levels of thinking.

In Section A of the questionnaire a tally was made of the frequencies of responses in each category. In Section C the items were given weighted multipliers for scoring responses: 5 for ranking an item first, 4 for ranking an item second, 3 for ranking an item third, 2 for ranking an item fourth and 1 for ranking an item fifth. Responses were counted then multiplied by these multipliers to get weighted composite scores for each item.

"Other factors" (Section B) were similarly processed although they did not achieve a significant ranking as they were usually concerned with a specific subject area.

5.2.1.3 FINDINGS AND RESPONSES:

Table 3* provides a summary of the frequency of responses to the twenty factors listed in Section A of the staff questionnaire and of the ranked position of the factors considered to be of major importance in influencing academic performance (Section C). No significant different in response

* Pages 249-251.

patterns was found between Science Faculty staff, the largest group responding, and the rest, and as Table 3 indicates, staff were mainly concerned with the problems emanating from the linguistic inadequacies of the students, the deficiencies in their schooling and differences in their backgrounds. Whilst these rankings help to focus on what are regarded as major issues influencing student performance, and also perhaps gave staff an opportunity to consider some of the problems facing the first year student, their responses in Section B and D reflected staff keenness to raise more fundamental issues involved in student adjustment. Herein lies the usefulness of open-ended questionnaires. Problems do exist in coding or classifying the issues raised, but as with the student essays, colleagues were happy to see what other members of staff wrote, and so an 'independent' judgement was aimed at.

The responses to Section B tended to broaden the scope defined by the items in Section A and just on a third of the respondees added further items. The most common factor to be raised concerned what one person called 'cross cultural shock'. The 'foreignness' of the learning context to many of the students was believed to be an important additional factor, as is reflected in the following comments:

"Primitive homes with no scientific gadgets".

Science faculty member.

"They are studying ideas and knowledges that are mainly Western. Had they been more frequently exposed to these Western things and had they participated more in Western ways they would perceive the import of the subject matter more readily".

Arts faculty member.

"Fear - strange setting, strange lecturers (e.g. White), ambiguous situation of being Black but treated deferentially by staff (different from outside Fort Hare). Being so used to authoritarian system in their schools and culture, they find it hard to respond to non-authoritarian teachers".

Arts faculty member.

Other factors suggested concerned the quality of teaching and assessment at school and at Fort Hare, the ability of the teaching staff at Fort Hare to meet what were seen as the additional demands of teaching in a medium which is a second or third language to the students and the overall lack of

student ...

student commitment to the institution in general and to their work in particular. As one staff member put it:

"There is evidence of a severe suppressing force by other students or outside forces ... which suppresses the above-average student."

By making recommendations (Section D) the staff also mirror their own views about learning, especially at university level, and what should constitute that learning, as well as by implication make comments on the students pre-university experience. Hence, the selection of statements which follows are quoted in full for they raise certain fundamental questions concerning the meaning of university education, questions which I explored in greater depth in the interviews held with staff members.

- A. 1. *Students must be given more opportunity to speak English (by compulsion, if necessary, e.g. having 'English-speaking days', or compulsory attendance at extra-mural debating societies, discussions, etc.).*
2. *My general impression is that they (i.e. first year students) are battling to express themselves with sophisticated material, e.g. in language, interpretation and appraisal, with an elementary knowledge only of the medium in which they have to express themselves.*
3. *They have been taught long lists of antonyms, synonyms, masculine and feminine gender (e.g. 'abbot' and 'abbess') without knowing what these words mean, how to use them, or any of the general knowledge background about them.*
4. *Many have little more than a 'subject-predicate-object' knowledge of syntax, and are incapable of writing a single completely correct sentence in a whole two-page essay.*
- I have had the opportunity of looking through several home-work and class-work exercise books of pupils at Black schools and find that most of their work consists of single-word exercises and very little composition of paragraphs or passages - at high school level.*

TO SUM UP

1. *More training in using English orally - at school.*
2. *More training in writing coherent English passages (composition).*
3. *More training in following instructions in English.*

Arts faculty member.

- B. *If there is required minimum intelligence and interest in course content it is crucial that the teacher should be able to discover*

the ...

the individual needs and learning problems of students in order to give individual attention to blacks in learning.

Large classes make this impossible: they should be broken up into smaller groups in, say, alternate sessions when discussions can take place.

For this more staff or fewer students are required plus more effort on the part of teaching staff.

Better planning and programming of presentation of course content will be an integral part of such a more concentrated form of teaching. More attention should be given to this by our University Management. We need a pro-vice chancellor whose task should be focussed on directing the academic programme to this end. The rectorship cannot do this as it is pre-occupied with administrative tasks and discipline of students.

Arts faculty member.

- C. *1. Student staff relationship must be normalised in one way or another.
2. Students fresh from high school should be given a one year course in a couple of basic subjects including practical English before starting their degrees.*

Theology faculty member.

- D. *The first year of study at university should aim at a general education.
1. Compulsory practical English for all students.
2. A compulsory course for all on social affairs e.g. how Government works, taxes, various social, agricultural services, etc. to provide a background that a useful citizen should have, and also give a background against which a career may be selected.
3. Aptitude tests and counselling available at all times for students.
4. Help the staff by having a Department of Tertiary Education which can assist in curriculum design, strategies for teaching, etc.*

Science faculty member.

- E. *Increase the amount of practical work and place less emphasis on recall. This will inevitably lead to poorer results on paper but in the long run this seems to be the only answer as far as (professional title removed) is concerned. We expect a high drop-out rate but the small proportion which succeed in passing the course will be worth their salt. I am quite sure that after a few graduates have been produced and have provided evidence of prospering in practice or Government Service, this*

fact will attract students of higher academic ability. The graduates will also generate interest in the discipline of ... (professional title removed) for its own sake.

Science faculty member.

- F. I have marked point (1) as being of minor importance because students with a school biology background perform equally with those that have had no school biology. I can only conclude that the gap between school and what we offer here is so vast that it doesn't matter what the scholar does before coming here.

Perhaps, therefore, we should reconsider what we regard as being our minimum standard at this university. I don't think it is quite fair to offer degrees with content equivalent to that at the so-called white universities if the school leavers arrive here with a different level of preparation and, at the same time, come from a developing society with a different set of priorities.

Science faculty member.

- G. Students should be aptitude tested before being allowed to enrol for a specific course. The results of these tests should be taken into consideration before allowing enrolment. Those who seem to be potential university material but who appear to have had a deficient training at school should be given a post matric course which will prepare them for university.

Alternatively such students could be required to take courses in practical English, study techniques and made to attend additional tutorials during their first year.

Student tutors should be employed to assist and guide students in the hostels. Some students will benefit from communal study sessions.

Agriculture faculty member.

- H. 1. Teach the student to think rather than memorise.
2. Relate ideas and factors to what he is familiar with e.g. in the botanical field give examples of plant succession common to Alice rather than N. America or Europe as quoted in the text books.

Agriculture faculty member.

- I. We should make clear to students that repetitive knowledge, though good enough for craftsmen, is inadequate for University graduates, and implement this principle rigorously. Questions which can be answered

by ...

by repetitive knowledge should be eliminated from all examinations. The extent by which knowledge has to be applied (transformed) for answering examination questions should be increased as the student proceeds at university. Practicals and Seminars should not only exercise the application of theory to practical fields but also the exploration of new and unknown fields with the aid of the application tools. This approach should be pursued without side-glance to White universities, serving a student naturally inclined to deduct and apply knowledge and rather disinclined to memorise.

We should promote every form of hobby and induce teachers in training to do so at grammar and high school level.

We should induce our students as future parents, to promote questioning in children, especially during the pre-school age, when it might still be natural in African children. A humble attitude is a prerequisite, in that one is hesitant to ask an authority. The constant fear of the next examination and the teacher as the examination-stumble-block needs to be overcome, possibly, by having an external examination authority only, so that the university teacher is exclusively the helper and friend of the student.

We must find means of overcoming African conservatism confronting White authority, thus suppressing the over-average student.

Agriculture faculty member.

J. Post matric year for all students with the following compulsory components.

English - \pm 15 lectures a week

- emphasis on vocabulary and comprehension
- improvement of reading speed
- note taking.

Current Social Studies - \pm 5 lectures a week

- e.g.
- how Government institutions operate
e.g. Reserve Bank, Inland Revenue, Post Office etc.
 - Social responsibilities for services
 - Gross National Product & Gross Domestic Product
 - Population control and problems
 - Education systems in other countries
 - Problems of developing countries vs highly developed countries
 - United Nations
 - International Monetary Fund etc.
 - Comparative religion.

Basic Arithmetic, Mathematics and Statistics - \pm 5 lectures a week

- e.g.
- How to interpret graphs, charts, diagrams
 - How to calculate interest, simple and compound
 - How to calculate percentages
 - How to prepare simple accounts
 - How to invest money etc.

Throughout year compulsory counselling with "tutor" about academic aptitudes, study habits, social adjustments, etc. Orientation to using the library correctly.

Optional Subjects - Musical Studies; Choir; Typing;
Physical Education; Basic laboratory techniques;
another language via language laboratory.

Education faculty member.

- K. 1. Provide compulsory courses in:
- a) Speed reading
 - b) Study and Examination Techniques
 - c) How to understand spoken English correctly.
2. Provide SUPERVISION (literally) of lecturers with a view to stamping out lecturing and teaching techniques which merely reinforce the first years' lack of skills: e.g. a blanket ban on dictation for more than 5 minutes per lecture.
For this a kind of Ombudsman would have to be appointed with the commission to improve teaching methods.

Law faculty member.

5.2.1.4 DISCUSSION:

These extracts suggest that the students' pre-university experience has not fostered the attitudes of mind and skills necessary for them to cope with and to benefit from the type of university education offered at Fort Hare. Three questions seem to emerge.

1. Through their recommendations, what are the staff saying about the nature of a university education and the context in which it takes place?
2. What are seen as the inadequacies in the students' pre-university experiences, at school and more generally?
3. What is the general focus of the recommendations?

Firstly, ...

Firstly, these staff members appear to be saying that in essence a university is where minds are educated and not merely plied with knowledge; that self-education is always more transforming than instruction by another; and that the end should be active and thoughtful intellect, independent judgement and freedom. The assumption is made that these ideas are essentially universalistic and yet, for various reasons, they are not shared by the students. There appears, at the same time, a belief in the seeming uniqueness of the problems facing students in this particular institution, that in some ways the problems teachers are faced with here are as they are because the life-worlds of the students and those of the majority of the lecturers, and that represented by the Institution, are very different. Is this necessarily so? I have already argued that the students' concepts of knowledge are essentially utilitarian (cf Chapter 4) but how far is this a product of their life-world, as a response to their overall position in the South African situation, or in fact reinforced by the staff's view of knowledge?

Secondly, these extracts suggest that the school-learning experiences are regarded as inadequate preparation for the students to follow a university course. The major concern of lecturers is the students' poor standard of written and spoken English. This is regarded as a major problem facing staff and students alike on this campus. Four of the top five factors listed by the staff are language related. Lanham (1979) has indicated that the serious decline in the ability to use English is not unique to the Black student in South Africa. The fact that he found that more than 70% of Black teachers in training were unable to express themselves in simple English can only have a profound ripple effect at University level.

Another issue raised was that students do not appear to think for themselves nor work independently; they appear to be note/textbook/ lecturer dependent. Criticism is again levelled at the schools for encouraging rote learning and for not fostering independent thought. The demands of the examination system and syllabi which pressurises teachers to maximise examination passes are blamed for this and also for the general lack of breadth in the everyday learning experiences.⁽⁴⁾ Professor Peter Titlestad (1977) has remarked in reference to White schools that

"at least ..."

"at least half (of the students we get from school) have been taught by cramming methods which do no more than get them through matric" - "young sausages stuffed with worthless ingredients who expect to become students when they have been equipped for the role of sheep".

But should one be thinking in terms of cultural or intellectual deprivation as is evidenced by some of the recommendations? On the other hand could suggestions that course contents be relevant to the students' experiences and needs be interpreted as an attempt to 'condemn the students to a second-rate or inferior existence'?

What are the implications of this for curriculum development?

Thirdly, what were the major recommendations?

An improvement in the standard of spoken and written English was seen as essential to a general improvement in the quality of scholarship and to the lessening of problems facing the students. The conceptual frames required in most of the courses do not exist in the mother tongue and this alone necessitates the use of English. But then no natural social context in which English can be acquired exists either.

The students only meet English in a teacher-learner situation and never as 'equals' and the net result is that some students become textbook-English bound and won't express their own independent thoughts. The recommendations for courses in communication, comprehension and reading skills seem to be justified.

Another theme running through the recommendations is the need for curriculum renewal and evaluation. The need for relevant content has already been touched on, but this also raises a number of questions concerning university teaching and assessment and its influence on the students' attitudes and attainment.

5.2.2 EVIDENCE FROM THE STAFF INTERVIEWS: A FURTHER CONSIDERATION OF THE STAFF PERCEPTIONS:

5.2.2.1 A BASIS FOR ENQUIRY:

Three issues, the nature of a university education, the inadequacies of the students' pre-university experiences, and the recommendations made, required further illumination. A structured pre-ordinate research design generally reveals the essential 'surface characteristics'. These alone can be

misleading in that the unanticipated is not entirely allowed for. It was necessary to preserve the complexity and allow for the emergence of the unexpected by being prepared to subjugate any intended outcomes to the actual development under study. C.H. Waddington (1977) suggests the importance of imaginative insight to make sense of the complexities of human society when he talks of 'the epigenetic landscape of human society' and the inadequacies of the classical scientific method for making sense thereof. The use of interviews enabled me to appreciate the complexities of the issues involved, the "rumpled reality as opposed to the immaculate ideal" (Parlett, 1972). Furthermore, the concept of 'progressive focussing' (Parlett and Hamilton, 1972) was adopted whereby ...

"... Beginning with an extensive data base, the researchers systematically reduce the breadth of their enquiry to give more concentrated attention to the emerging issues. This 'progressive focussing' permits unique and unpredicted phenomena to be given due weight."

Parlett and Hamilton, 1972

5.2.2.2 PROBLEMS ENCOUNTERED:

Because a respondent and I are involved in a human relationship, I realised that the interview situation would be subject to a whole range of influences beyond those involved in the simple seeking and supplying of information. A particular problem concerned the use of a tape-recorder. In general the white members of staff interviewed were quite willing to talk and express their views and to have them recorded. There were a few exceptions. Nearly all the black members of staff, however, expressed certain reservations about having the interviews taped.⁽⁵⁾ The single exception was a man who had travelled widely, possessed overseas qualifications and occupied what he called 'a fairly safe position because of my seniority'. The interviews lasted between 45 and 75 minutes.

There were, perhaps, two main points of particular difficulty encountered. Firstly, the problem of unbiased questions. Although every attempt was made at the outset to produce an open-ended question schedule that was free of personal bias and ambiguity, inevitably the interview became a discussion. Similarly I had to remain aware of not responding to a particular stereotype on the basis of who I was interviewing or on his or her perceived political affiliations or language or race group. The effect I had on the respondent may equally have produced certain distortions in that he or she may have been unable to shift from his or her associated

expectations ...

expectations. I was aware of the need to avoid reinforcing some responses at the expense of others either by expressing an opinion I may have shared with the respondent or by showing embarrassment following a particular response. This arose particularly when proposals or reservations were made by the respondents. It was always difficult to assess how many replies were frank and blunt or just provocative, or how often they were a veiled reflection of my ideas or a screen for something else.

A second problem, allied with the first, concerned having to select from amongst the responses obtained. This is a common problem with open-ended interviews. Although the interviewer or respondent may intend to select main components, one may in practice select in accordance with personal opinions or areas of interest, perhaps ignoring other equally important bits of information. To overcome this, insofar as this is possible, I kept my questions short, allowed the respondents to do most of the talking by encouraging them to say more and I tried to avoid embedding answers in the questions. I particularly found periods of silence quite constructive.

Thirty members of staff were interviewed. They were randomly selected from the list of names which appeared in the 1979 university calendar. Three criteria were applied, however. First, they had to have had experience of teaching first year students. Second, whilst less than a quarter of the lecturing staff in the faculties of Art, Science, Law, Theology and Agriculture are black, I was keen to see whether or not a 'black perspective' would be found in the responses, so just over one-third of the respondents were black members of staff. Third, a reasonable distribution across the various faculties and in terms of status (Professor, Senior Lecturer and Lecturer) and in terms of the numbers of students registered in the faculty was decided upon. (cf. Table 4) (page 210).

TABLE 4
TABLE OF RESPONDENTS

FACULTY	PROFESSOR	SENIOR LECTURER	LECTURER	N. BLACK STAFF
Arts	2	4	3	4
Science	4	4	2	4
Law	2	2	1	1
Agriculture	1	1	0	0
Theology	1	0	1	1
Economic Sciences	0	1	1	1
Total	10	12	8	11

Finally, interpreting and assessing what the staff said, I had to avoid interpreting only that which has some foundation in my own experience. To avoid such perceptual traps I asked five colleagues, other than those interviewed, to listen to the tapes and to comment on the issues raised, the particular positions adopted and the influence of my questions. None of them commented on the possible interviewer influence apart from questioning the 'fairness' of my tendency to 'reinforce' or encourage the respondents to divulge their prejudices. Their lists of the major issues raised and their assessments of the particular positions adopted helped me to a fairer interpretation of what was said. Once this had been completed I edited the tapes to highlight the major issues raised and these edited tapes were listened to by a group of graduate students. (Fifteen in all). Their commission was to react to the positions or viewpoints put forward. I asked them to tell me whether what was being said about the students and their perceptions of a university education, as seen by the staff, was true.⁽⁶⁾ Initially I tried to tape their reactions to these tapes, but this was subsequently abandoned and I have had to rely on field notes made at the time.⁽⁷⁾

5.2.2.3 THE LECTURERS' VIEWS:

5.2.2.3.1 INTRODUCTION:

All those interviewed commented on the students' seeming lack of commitment to their work and more especially to the academic ideals they, the staff, believe they represent. This was evident, it was argued, in perfunctory as distinct from real learning, in viewing knowledge nomothetically and in

seeing ...

seeing knowledge and learning as a commodity which carries with it status. Whilst the staff saw the reasons for this seeming lack of commitment arising from:

a) the nature of the demands of a university education, and of their (staff and students) respective expectations, and

b) the nature of the students' pre-university experiences

herein also lay what were seen as the reasons for the high failure rate.

The significance of these reasons revealed certain divergent opinions between white and black staff members, however. I therefore propose:

firstly to consider characteristics found to be problematic in the above reasons (a and b) and,

secondly to consider the nature and implications of the assertion that students lack a commitment to certain academic ideals.

5.2.2.3.2. PROBLEMATIC ISSUES:

5.2.2.3.2.1 The nature of the demands of a university education and of their (staff and students) respective expectations:

A Mismatch in Expectations?

On two issues the responses reflected a marked consensus. These concerned the lecturers' own expectations and their perceptions of the students' expectations. The first set of questions in the interview concerned the lecturers' expectations of their students. With it an overall consensus about what was regarded as the ideal characteristics of a university education emerged. The belief in a universalistic education which serves personal and national ends and through which active, thoughtful and independent judgement is fostered, was held to be a major goal of all those interviewed. In order to move towards this end high value was placed on the need to help students to grasp main principles and basic concepts, to inculcate a way of looking at things critically and to communicate facts and technical skills. It was generally felt that interest and enthusiasm would grow as the individual became immersed in what they were doing.

It was the mismatch between the lecturers' expectations and those of the students, as perceived by the lecturers, however, which opened up the crucial issues involved in the relationship between the lecturers and the students' expectations and the institutional or contextual framework in which this is embedded.

The following brief interchange between a colleague and myself illustrates the perceived mismatch between lecturer and student expectations.

Interviewer: ...

Interviewer: What do you expect your students to be able to do as a result of taking your course?

Agricultural Science faculty member (Professor)

"This is a big problem. My expectations and the students' expectations diverge. I want to train a young man to perform a service but my students come here to achieve a dignity or a status. It is not natural to my students that the course will lead to a duty involving undignified activities."

Interviewer: Will you explain that?

Respondent

"A high status in the veterinary profession is only achieved through commitment and service and this often means doing some very undignified work." (He went on to explain the reluctance of students to carry out an internal examination of a cow and their wish to do it in 'theory' only).

"They are quite happy to sit back and let me tell them what to do but no service is rendered to the nation if I produce dignatories who do not want to render a service."

A similar perspective reflecting the need for commitment emerged in the following statement:

Economic Sciences faculty member (lecturer)

"In accounting if you sit down and listen to a lecturer talking it is very easy to be tricked into thinking that you have understood everything until you are called upon to actually do the thing yourself. But the students think they can do this."

The following interchange reflects a different dimension of this issue.

Arts faculty member (Senior Lecturer)

"I want my students to be original and independent, but when the student arrives here he is not yet ready, he is immature, he feels inadequate, and he feels perhaps even that the lecturer is demanding too much. Because you say, 'okay you are on your own now'. But he feels ... 'I don't know much about this. I am here to be taught'."

Interviewer: Could you develop this?

Respondent: ...

Respondent:

"All students have been taught to memorize and gullibly swallow information without any kind of criticism."

Interviewer: At school?

Respondent

"Yes, and here too. You know, students say this is what is expected of you, to give the lecturers his notes back, as wrong as they are! They get their A's as a result!"

Interviewer: Are you sure?

Respondent

"Okay, staff deny it yet they do it. Yes I am sure."

A lecturer in the faculty of science highlights the mismatch as follows:

"The students need to develop the ability to analyse what they see happening in front of them and not try to remember it will happen because you told them it will. They need to get into that experience especially in their practicals. But they see the work as something to memorize, they don't share the problem."

(My underlining)

Another lecturer in the faculty of science places the responsibility for this in the students' hands:

"The students believe that there is a body of knowledge, a body of fact, which has to be learnt off by heart in order to pass. This means that if you are prepared to give them exactly what is required of them to learn and then test it, you will find they are capable of extraordinary feats of memory. They object, in fact, if you expect them to do otherwise."

Of course these interpretations are not necessarily infallible but the evidence from the student responses confirm the belief in rote learning and a utilitarian view of knowledge and of education.

Staff are aware of what the students seem to want of them and this is confirmed by the students themselves. There is, then, a mismatch between what staff say they are wanting to achieve and what is expected by the students. Moreover staff express the belief that the rote learning

which have served the students well at school are inadequate at university. But the issue would seem to go deeper than this.

I was interested to see how staff coped with this mismatch of expectations. I therefore asked them to explain how they responded to the student demands for notes and clearly structured information which they, the students, could learn off by heart to reproduce in an examination.

The following statement reflects a common response and also shows a movement towards meeting an additional problem as well, that concerning the students' pre-university experiences.

Science faculty member (Lecturer)

"When I came here five years ago I wanted the students to be excited and involved, to expand their awareness of what is open to them. I am now more concerned with getting them to cope with the language of the subject and with conceptualizing within the subject. I build up the background at first year level. The philosophy of the subject will come through it later."

There is widespread concern about the lack of background experience and the seeming lack of any intrinsic interest in what was being studied. Staff argue that the first year is invariably spent helping students to cope with various difficulties. These were especially:

- (i) coming to terms with a totally different learning perspective or philosophy of knowledge,
- (ii) the language and communication issue, and
- (iii) difficulties surrounding skill or manipulation tasks.

The belief that students are 'deprived', that they have problems, is commonly expressed. The 'solution' is to give them a necessary foundation to meet the needs perceived. It is in this situation that certain contradictions seem to exist. Staff have been quite explicit about their goals, they have seemingly perceived quite accurately the expectations of the students, they have recognised the style of learning which the students find most congenial. The students reinforce this interpretation by their actions, by their reliance on rote learning. For example, a common problem which was mentioned by nearly all the staff was the difficulties students had in answering test or examination questions.. When students were asked to

distinguish ...

distinguish between two things or ideas, or to compare one with another, they invariably listed the characteristics of the first and those of the second, but seldom distinguished between them or compared them. This, staff have maintained, reflects the poor perceptual training received at school and the students' reliance on rote learning. Yet there is evidence that some staff, albeit perhaps unwittingly, are themselves reinforcing the contradiction.

A science faculty colleague after having expressed his goals and expectations and having commented on the mismatch with those of the students, went on to say in reply to my enquiry concerning his response to the students' expectations,

"I want to bring them to the book because if I don't do that then they will always invariably just want to listen to me and do nothing."

What he wanted was that they should come to learn the facts laid out in the textbook.

The contradiction was unseen, yet he had experienced a common problem. He continued:

Respondent

"I find that the students can't understand the textbook so I spend time going through the textbook explaining all that I can."

Interviewer: But to what extent do you think this encourages dependence on the textbook or on you?

Respondent

"I don't know but it does help them to understand the facts."

Interviewer: What facts?

Respondent (rather puzzled)

"Those in the book."

Interviewer: Is that all you require them to know?

Respondent

"Not at all, but from these foundations they will be able to go out and read for themselves."

Yet the person's teaching appears to be reinforcing contrary attitudes to knowledge and learning,

Similarly a professor in the faculty of Arts expressed himself as follows:

"In the beginning, at first, I am trying to get them to understand exactly what I understand under certain terminology because they have got a problem as far as terminology is concerned. If you speak of democracy, and I do, we understand each other immediately, but those people don't have an idea what it is about. And therefore I devote a lot of time to this. However, I still find it difficult sometimes to understand why after such a period they still do not follow what I am talking about, and this I think is one of the problems we overlook, that those people do not really understand what we mean when we say certain things. Now the unfortunate thing in tests and assignments is they write out of books, they repeat a lot of very very hifalutin wording and so on."

It is difficult to assess whether this reflects a particular 'hidden curriculum' or not. The person appears to be saying that there are certain definitions or terms he wishes the students to know without which he cannot proceed. Without a common understanding of these assumptions further teaching is seen as difficult if not impossible. That these assumptions or definitions are not necessarily shared, and are perhaps learnt by the students for sheer convenience is not appreciated. The professor condemns the frequent plagiarism of his notes or the textbook by the students and yet seems not to recognise the implied contradictions. The notion that perhaps education is a shared learning experience, that the lecturer or the textbook or the core-note⁽⁸⁾ is not omnipotent, whilst subscribed to at one level, appears to be denied in actual practice. Students care about getting the certificate at the end of their courses. To them the best strategy has been rote learning. Whilst this is condemned by lecturers as being inadequate, students continue to be successful using the strategy in certain departments. It is a response to a situation; they are, in Parlett's view, 'cue conscious'.

But it is also, I suggest, a response to a situation which is as much of their making as it is of some lecturers.

The following incident provides a useful example of a situation faced by more than one lecturer in this university.

During ...

During 1978 students in the faculty of Economic Sciences complained to the Dean of the faculty that a particular lecturer was expecting too much of them. The lecturer concerned explained:

Interviewer: What were the complaints?

Economic Sciences Faculty member

"I think what triggered off the problem was they came here and were doing mostly content subjects except for this one particular subject ... (accountancy) ... and they cannot easily come to master the subject. Instead of, perhaps, looking at themselves to say where is the problem, where have I gone wrong, they tend to accuse the teacher or draw this very irrelevant analogy that if in other subjects, like business economics, they pass so well, why not in this subject. So they went and applied the logic that the problem must be with the teacher and not with themselves, whereas to my mind the correct logic they should apply is, let's compare this subject and the standard applied in this department with the standard employed in other universities. The nature of the subject is such that you cannot compare it with a content subject."

Interviewer: What did they want you to do?

Respondent

"They spelt out their objectives very clearly. They said I must drop standards."

Interviewer: Drop standards?

Respondent

"Ja, this is the irony ... You see if I were to drop standards I would be accused of giving a second-rate course. You see in the other departments here they possibly didn't have as many loopholes. We decided a long time ago when we are setting a test you must at the same time also have your solutions.

(He mentioned that they could then work through them after the test).

The only thing they could point to was the questions and that I must drop the standards."

Interviewer: Was there any way they wanted you to change your teaching?

Respondent ...

Respondent:

"Not at all. They actually said they were happy with the teaching and that they were able to understand all that was said. The only problem was when it came to tests or exams. They said I set very difficult questions."

Interviewer: What principles do you follow when setting a test or exam?

Respondent:

"I usually set different examples of the same problem to test the students' understanding."

This extract illustrates some of the implicit contradictions in the teaching - learning situation. The students' definitions of success are totally instrumental. This, as was suggested in chapter four, applies not only to the scholastic sphere but to the whole dimension of life. As one colleague put it:

"If you had been sanctioned so ruthlessly in all sorts of areas, you would play safe."

Faculty of Education member.

The students' concern with failure is immense. They are accountable to a wide range of people, and if success is defined instrumentally failure is also seen in these terms. He continued,

"A student who has failed cannot have had a 'good year socially' or a 'culturally enriching year', if the 'goods' haven't been delivered."

Faculty of Education member.

The staff member in Economic Sciences was also well aware of this and he was in a sense a 'victim' of his own professional standards. But the students were unable to appreciate their contradictions. As one of them said to me:

"He (the lecturer) is trying to keep us down."

The lecturer was equally emphatic.

"This is an example of student dishonesty. They want one thing and the other, yet they would not object if the course was made easy because they would pass in the easy way. Do they want Bantu accountancy or real accountancy?"

Nonetheless, the students sanctioned the type of behaviour described. Whether or not this lecturer has changed his style of examining I do not know, but I shall show, later, how pressure from a class of students brought about a change in the content of a course. (cf. Law case study).

The ...

The following colleague in the Faculty of Arts recognises this 'double-bind' situation too, but he feels less inclined to resist the pressures. He does not believe he is really helping his students, yet he feels unable to break the vicious circle.

"I want to join with my students in a joint search for understanding. They must be with me in thinking about the 'why' and not the 'what'. But my use of the traditional lecture method and note giving is because of the students' problems especially with language. I think it is too late to mend the damage done before they get here. The students want notes yet I want my students to open up on their own. But I give them notes and I would not fail students who rely entirely on them."

Yet when a lecturer in classics attempted certain innovations to meet his aims he found that ...

"They thought that I was copping out of my duties as a teacher because I was not giving them so-called grammatical instruction nor telling them exactly what to learn."

What was not obvious in certain responses, however, was that 'ideas that students should be exposed to', or 'key concepts for them to come to grips with' or 'preparing them for later understanding' all imply certain assumptions and theories about how teaching should best proceed. To expect one thing and then not match the learning or teaching strategy with the intended outcomes, is to allow for unexpected results. To condemn students for using rote-learning strategies is only to recognise part of the interaction. Reflection on one's own actions could provide different insights. Certain institutional arrangements themselves provide cues to the students. Students attend around four hours of lectures per week per subject (usually four subjects in the first year) in addition to practicals and tutorials. Only one member of the staff interviewed suggested that perhaps the students were being 'over-taught', that they had no time to work independently of the lecturer. Independent work also assumes the availability of adequate resources and especially a well stocked library. Seventy-two per cent of the staff interviewed made mention of this. In addition, students are regularly tested.

It is my general contention that for students to become independent, resourceful, enquiring individuals they need to be given the time and the responsibility to become so. The emphasis on 'input' which characterises the teaching in this university does not match the desire of staff to encourage students to work on their own and to become active, independent

and ...

and critical thinkers. The students appear to want what they can cope with in the way in which they have become accustomed. Any attempt at change creates tensions. Yet the consequences of not recognising the students' autonomy, independence and capacity to learn independently are likely to be serious indeed. The above example from the faculty of Economic Sciences is evidence of this. Where the teaching structure has removed this autonomy, many things are implied to the student. If this occurs and is reinforced by particular assessment procedures, then to complain that students lack commitment, or are uncritical and fail to show an independence of mind, is to practice self-deception. As one staff member expressed it:

"When an authoritarian ethos is engendered there are dangerous consequences. People come out of here (Fort Hare) without their real beliefs ever being challenged. We are training future Amins."

Arts faculty member.

This is not to say that all staff do subscribe to 'authoritarian' beliefs or methods. What I have been emphasizing, however, is that there are staff who subscribe to certain practices without ever considering how the students assess the situation around them.

A different potential problem exists here too. It is accepted that the handling of students in a community relatively disadvantaged calls for fact, a sensitivity to the frequent lack of academic self-confidence and to its consequences, and a generally supportive orientation. From the students' responses it would seem that certain staff are not believed to make the necessary allowances, but sympathy and support for disadvantaged students could be insufficiently moderated by a concern for accuracy in judgement, and students may be implicitly encouraged to attribute all their inadequacies to external factors. If this does happen what could follow is self-delusion, insufficient self-criticism and a mis-education.

5.2.2.3.2.2 The nature of the students' pre-university experiences⁽⁹⁾

Whilst many reasons were suggested by members of staff for the poor performance of first year students only that concerning language problems is raised again as it appeared to have direct relevance to the major issue which emerged; why no common commitment to the institution and learning seems to exist.

Language problems:

Whilst the students' poor command of English was seen as a major problem in the teaching - learning situation I have been concerned in this study merely to highlight the existence of the problem. (10)

Superficial problems that people complain about concern the fact that the students speak a kind of inter-language in which there is an over use of the present progressive, problems of tenses and the use of inappropriate vocabulary. Staff believe that it is impossible to get them to speak a standard South African English because they are exposed to this alternative model. Most students speak in the vernacular outside classes and they generally use it in class too to communicate with each other. Members of staff interviewed who were non-native English speakers all recognised their own inadequacies and that of the model they projected. This contrasted with the students of whom 24% only identified this as a problem. From interviews with the students there appears to be a deeper issue involved concerning the use of 'English as it is spoken by the English'. A number of black staff members have confirmed that while the older generation thought of the correct use of English as a status symbol, the present generation are not concerned with it. As one member of staff expressed it:

"... they no longer care a damn how they speak their English. It just doesn't have the same value it used to have ..."

Arts faculty member.

The result is that staff have a difficult task trying to convince students that in order to survive or achieve a level of excellence they need to achieve a fairly high level of competence in the reading, writing and speaking of English.

It would seem from my interviews that this is part of the philosophy of Black Consciousness. It is part of the analysis of the psychology of oppression in that the oppressor is seen as being able to use his language to control them in various ways. One student put it this way:

"... the white man uses his language to get at you in various ways. Through it he controls you in many areas such as here in one's exams."

Male Law student.

A black member of staff added a further dimension to this by suggesting that ...

"A student can only succeed in the study of English if you are not alienated from the whole culture. I became an English major the moment I became alienated from my surroundings. I began to think of women the same way as Lawrence thinks of women."

There appears to be this psychological barrier which is seen to influence the students' use of English, and whether or not Lawrence's views on women are to be admired, they are seen to represent a different set of values and assumptions.

Most critical of the students' language use were members of the faculty of law who saw one of their tasks as inducting students into a particular form of English and saw the need to insist on correct and explicit usage. The same was true in other departments where a specific language was required, e.g. scientific language in report writing. This creates tremendous tensions especially regarding the awarding of marks. Whether there are grounds for recognizing different non-standard models of English is something on which there is little consensus (cf. Lanham, 1979). Certainly, very few members of staff interviewed concurred, yet at the same time recognized that an important factor in encouraging students to be textbook/note/lecturer-bound and to make use of rote-learning strategies, was the students' inability to communicate in English and to understand the written word.

A more fundamental problem concerned the understanding of concepts. It is difficult to know whether an inability to understand concepts is strictly a language problem or a conceptual problem. Here, too, there is an opportunity for someone suitably qualified to undertake research. Lanham (1979) has argued that the inability to understand concepts is essentially a linguistic problem. He states that the local vernacular (Xhosa) does not possess the conceptual frames for use in the calculating sciences and mathematics. Hence, he suggests, extensive borrowing is necessary if the mother tongue is used in these areas. No specialised vocabulary or language exists. (See also Peters 1966, Seretlo 1973). On the other hand, I have observed a teacher in a chemistry practical switch from one language to the other (English to Xhosa), and when Xhosa is spoken the pupils appear to come out of a trance. The haze before their eyes seems to drop away and they appear

to be able to understand the concepts being developed. Perhaps it is that English is taught in such an abstract, out-there way that they don't ever use English in the way one needs to be able to use it in order to grasp concepts. The evidence, from the staff and students, seems to suggest that the inability to use and understand English limits the students' ability to work effectively and independently. Their 'solution' is to rote-learn. But what is uncertain and in need of research is to find out where the problem lies and what the communication concepts are in each subject. It is difficult to divorce language from learning problems and part of the problems students appear to have with the language is the perception they have of learning. As I have suggested elsewhere, learning is passively absorbing but this is also a defence strategy. Furthermore, there is so little opportunity for the students to use English in a variety of social contexts. The only situation in which they can speak English with a native English speaker is in a position of inferiority. They have never had to speak it as an equal and tend either to be too formal or verbose or not formal enough.

5.2.2.3.2.3 The nature and implications of the assertion that students lack a commitment to certain academic ideals:

5.2.2.3.2.3.1 Introduction:

The tension between what may be conceived as a 'good education' and what is seen as an 'effective education' has already been considered. The evidence reflects a disjunction frowned upon by the staff and yet perhaps reinforced by them as well as one which is perhaps only partially recognised by the students. Whilst the staff all point to the students' seeming lack of commitment to their ideals, when it came to accounting for this, differences in opinion were found between the majority of the white staff members and the black staff members. Similarly, whilst all staff agreed that learning can only take place in a context which is real to one, differences emerged concerning the significance and quality of the present context.

In this section two issues will be considered;

- 1) what staff understand by commitment, and
- 2) why commitment is seen to be withheld.

Concerning what staff understand by commitment emphasis is placed on features of such commitment and the justification sought for it. Concerning the reasons why commitment is seen to be withheld particular emphasis is placed on:

a) ...

- a) the issue of cultural alienation and the notion of deprivation,
- b) the consequences of the ideological stance of the institution and the broader consequences of context especially concerning the question of openness, trust and purpose.

5.2.2.3.2.3.2 What staff understand by commitment:

It was stated earlier that all staff interviewed commented on the students' lack of commitment. From what they said it appeared that by commitment they had in mind the development within the student of an attitude of mind. The learner, they believe, pursues an activity for its own sake, because of intrinsic interest in what he is doing. In this sense, coming to know would involve the student in learning to think in a particular manner rather than 'knowing' what might be called the current state of information relating to a particular discipline. Commitment is seen as a personal choice in which the student looks for and eventually accepts a shared 'meaning frame'. Polanyi (1973) suggests that part of a student's learning involves coming to share the same 'conviviality' with practitioners in the field. Wittgenstein (1976) talks similarly of 'language games', Schutz (1972) of 'multiple realities' and Kuhn (1970) of sharing 'paradigms', in which each is used to show that in some way the meaning of terms, expressions or descriptions are grasped within the same 'frames of meaning'. In so doing the students become committed not only to the same symbolic generalizations and theories, but also to the same beliefs in certain types of models and explanations and to the same sets of values.

Justification was sought in the name of upholding academic standards. Put differently, belief was expressed in the importance of ensuring that students are publicly recognised as having the knowledge and abilities which they have attained and, conversely, ensuring that students should not receive recognition for knowledge and abilities they have failed to attain.

In two instances, Accountancy and Land Surveying, an external certificating professional body sets the criteria demanded of the students, although this only occurs after graduation. Nonetheless, the staff concerned believe their 'standards' or 'criteria' at first year level, too, are influenced by these external boards. For the rest of the staff interviewed a certain degree of unease existed when so-called standards were mentioned. Reference was made to the use of external examiners and to courses being taught in other universities. There was one staff member who claimed his standards to be higher than those in White universities, whilst the majority of staff

suggested ...

suggested their standards were about the same. A few suggested that their standards were lower, however. Three of the staff interviewed suggested that 'standards' are relevant to or part of the teaching learning situation, and questioned the assumptions on which the notion of 'standards' is based. What was noticeable, however, was a pre-occupation with 'standards' and with justifying their particular positions. There was a sense of unease, of 'looking over one's shoulder', about the discussions.

Why should this be so? Is it a consequence of the isolation, in the academic and political sense, of the institution? Answers to these questions are not easy to find. The responses tended to reflect an adherence to what Ashby (1974) has called an 'intellectual gold standard' which is firmly rooted in the White universities of South Africa. This is a similar attitude to that reflected in Nkondo's Turfloop Testimony (Nkondo, 1976). There appears to be little recognition that the notion of a standard is also a result of policies, precedural rules, decisions and discretions external to a performance in an examination or course. Standards and qualification tend to be seen as one and as representative of quality. The student responses reflected a concern with the status of having a degree, and all the staff responses suggest that this inhibits real learning and scholarship. Yet the university itself lays down qualification criteria for appointments and so ties qualifications with status. The quality of an applicant's scholarship is seen to be represented in his qualifications. A similar position is reflected in the submissions of the black staff association at the University of the North. (Nkondo, 1976).

The consequences of this for innovatory teaching and course development are serious for decisions are likely to be hedged in by questions of a relative nature and not by questions of relevance.⁽¹²⁾ Moreover, the opportunity for students to view with suspicion whatever is undertaken, already there because of the nature of an institution like Fort Hare, is heightened. This was also apparent in the seeming mismatch in expectations which staff have noted. The claim is that Black universities have the same academic standards as White universities, and Fort Hare has elaborate mechanisms for ensuring that this is the case. But it is equally likely that Fort Hare is becoming more closely geared to the standards which are the output of a third world, black school system. A professor of a subject requiring a form of English composition has problems at Fort Hare which his colleagues in English medium universities do not have. In this sense where attempts are made to meet the needs of the students, black students will probably cope better at Fort Hare than

elsewhere ...

elsewhere.⁽¹³⁾ The black student at Fort Hare has in fact come to a university more appropriate for the skills he had on leaving school. A senior professor expressed this as follows:

"We have in a way got a third world education system trying to cope on the cheap with huge and expanding numbers. The products arriving at university and the expectation that you can pin on to them a first world university system and the assumption that our graduates can compete internationally, is unrealistic."

But to accept this would appear to be politically naive in the context of separate development. What is expected is a commitment to Western academic ideals and to the institution which is believed to be the guardian. (cf. de Wet, 1979).

5.2.2.3.2.3.3 Why commitment is seen to be withheld:

Two main reasons emerged in the responses all of which highlight the contradictions implicit in the total situation.

5.2.2.3.2.3.3.1 Cultural alienation and the sense of cultural deprivation

In general what is being offered the students is seen by the majority of the white staff as necessary for the students' assimilation into a 'western' cultural context. The black staff, on the other hand, whilst rejecting any form of 'cultural imperialism' equally value the universalistic elements of the world of scholarship. Although this problem is not unique to Fort Hare (cf. Eicher, 1973) the issue of 'cultural dependency' is exacerbated by the conflicting goals sought by the government, on the one hand, and the students on the other. In a plural society there is no single culture although in South Africa there exists the dominant White-western culture. To the students and staff the western, capitalistic system holds the offer of seemingly attractive material rewards. Eicher (1973) argues, however, that this dependency has ...

"inhibited the development of African institutions and the capacity of Africans to develop educational policies which are socially relevant and financially feasible."

The student responses reveal the existence of a tension between two needs. On the one hand there are the perceived demands of the professional role for which training is being provided, and also some notions of international academic standards. On the other there is the lack of commitment to the

fundamental ...

fundamental assumptions of the society in which these skills are to be practised. The loss to all universities in South Africa through an arbitrary limitation of the range of experience and contacts available to a whole body of students and staff is a consequence, both internationally and nationally, of the present government's policies. But as far as these students are concerned they see that career and other opportunities are shaped by white initiative, in an environment which operates in accordance with white modes of thought. In particular the techniques and administrative methods that are essential to the smooth running of an advanced economy, particularly in the dominant capitalist free enterprise system, are part of the home background of most White students, but are not part of the background of most black students. Education is seen as the means with which to compete on 'equal' terms in a system which does not derive from their own cultural background, and it has been argued that they cannot easily acquire the necessary training and experience at universities segregated on racial grounds. (cf. Oppenheimer, 1979). Whether this implicit discrimination can only be brought to an end by a form of African Socialism (Nyerere, 1973) or by continued improvement in the educational facilities available to Blacks and the opening of universities to all races, is an issue beyond the scope of this study.⁽¹⁴⁾ ⁽¹⁵⁾ But what is significant are the seeming contradictions which bedevil the situation and which emerge again when the effect of the context is considered.

Various authors (Sidran, 1971, Nkondo, 1976, Manganyi, 1973, Biesheuvel, 1958, Duminy 1968, Grant, 1969, Smith, 1958, Nel, 1967) point to the differences in the basic foundations of the two cultures, Western European and African. More especially it has been argued that the demand for such qualities as intellectual curiosity and idealism with its emphasis on individualization is contrary to the Black man's values of reciprocity, sharing and the primacy of the community. Furthermore, Western European culture is a 'lettered culture' whereas the blacks' roots lie in an oral tradition. Orality, it is argued, demands different life-styles, thought processes, learning patterns, concepts of time, perceptions and value systems. (Sidran, 1971). The oral man, according to McLuhan (1964), is at all times emotionally involved in, as opposed to intellectually detached from, his environment, through the acts of communication. He has characterised this lack of intellectual detachment as contributing to a superior sense of community, and has argued that the lettered man's criteria of what constitutes legitimate behaviour, perception and communications

often ...

often disregard that which constitutes legitimate stimuli to the oral man. Time, in the Western sense, is a translation from motion through space, whereas in the oral sense it has a 'purer' involvement with natural occurrences and perceptual phenomena. Hence, Strauss (1968) argues, black people do not listen to music, they are music; it is a form of communicating. Groenewald (1976) asserts that the traditional black society is concerned first and foremost not with developing the individual's individuality, but with making him one with the group.

Manganyi (1973) suggests that the nature of the differences between black and white experiences is reflected in the development of two different sociological schemas of the body, one which is black and bad, and the other which is white and good. He points out that under what he calls 'ideal conditions of the good body' the body becomes, for the individual, a 'point of view'. This means ...

"that the individual schema predominates over the sociological schema. This last condition is one which has obtained in white societies for a long time. In black communities, on the other hand, through the artificial and unnatural predominance of the sociological schema, the individual schema has become traumatised and ceases to be a point of view; of telling the world who one is."

Manganyi (1973)

One implication of this negative sociological schema, with its barrier attributes, is the primacy of the individualistic and materialistic ethic of the white community, with the corresponding denigration of the dignity and self-respect of the black. Schlemmer (1972) has added that this has led to a 'life-style characterised by passive submission and a chronic sense of helplessness' or 'anomie'. (Berger and Luckman, 1967).

If this is so, then it is not surprising that the students don't look at White lecturers as fellow learners or necessarily even as teachers. Moreover, one needs to ask whether a university education is equally meaningful to both staff and students, for without a shared commitment such meaningfulness is impossible. Whilst this research has provided many clues to answering this question in the form of the mismatches discovered, I feel I am nowhere near to a solution. Fundamentally White experience is distant from that of the black experience and has, as such, placed a general limitation on what I have been able to discover. Yet I wish to assert that for any

commitment ...

commitment to be engendered an environment is required which is supportive of the individuals within it. This implies that situations where staff talk of the students as 'us and them'⁽¹⁶⁾ represents communicative inequality, an expression of an attitude of relating and distancing by referring to an 'in-group' and an 'out-group'. Such a climate makes a contradiction of the notion of shared learning experiences expressed by the majority of staff interviewed, when the student really believes he is inferior.

But at a more fundamental level, commitment and pride can only grow when there is a sense of belonging and possession. In the area of the curriculum I have argued that the students do not have the opportunity to engage in the kind of excitement and thinking which goes into the development of their courses. They arrive expecting to receive a package and this is what they appear to be given in certain instances. They are accused of not making it their own, of showing no initiative, but they are not asked to share in its creation and development. The impetus comes from one side only. Whilst this is not unique to Fort Hare, can staff legitimately complain about a lack of commitment?⁽¹⁷⁾ Within the institution a similar sense of alienation is perceived by staff and students, and none of the staff interviewed felt there was a corporate academic ethos within the university.⁽¹⁸⁾ Certainly a study of the decision-making processes within the institution should be undertaken for I suggest it would reveal a fairly limited and restricted structure with virtually all power vested in a committee of faculty deans. The students tend to see the scenario being played out in front of them as a clash between two ideologies and the following comment also points to their exclusion from any decision-making about themselves.

"Unfortunately here at Fort Hare there is a struggle of tradition which has been existing since the missionaries were taken out. During the time of the missionaries there was a certain idea which had to be preserved in the university and that after 1959 there has been a struggle as to what we want at this university. I think there has been two ideologies, that represented by the English and that by the Afrikaner with the university. Each pull their own way to our disadvantage and neither have thought to ask our opinion."

Male U.E.D. Student.

Where ...

Where staff do not speak in 'us' and 'them' terms yet subscribe to the notion of 'cultural deprivation', alienation is equally likely to be reinforced. It is this that bedevils any so-called remedial programme. The contradiction can be recast as follows. Students accept a remedial programme, or something they may perceive as being of second-rate value, because certain rewards are likely to accrue, yet in accepting it they in turn confirm their different status.

The notion of 'cultural deprivation' has been used by certain White members of staff as an explanation for the poor academic performance of the students. It was difficult to avoid the conclusion that certain of them were propounding theories of social Darwinism and ethnocentrism especially when they referred to 'these people' as 'not being ready' for whatever value or skill they were hoping to instil. There is equally a tendency amongst staff to equate the real material deprivation which the majority of the students suffer with an assumed cognitive deficiency.⁽¹⁹⁾ Work similar to that of Labov in America with Negro children has still to be undertaken in South Africa, but Serpell (1974) has shown that a sample of Zambian school children possessed the same capacity for conceptual learning as a sample of English school children.

It is not my purpose to pursue this problem further. My intention has been to make the point that to engender a sense of cultural inadequacy can be divisive in that it encourages a rejection of one's essential social and psychological experiences and achievements. In addition by proposing an essentially different and particular definition of reality, which is also seen to be attached to a specific power interest, whether this be in terms of the university's assessment procedures or in a wider ideological sense, it is questionable whether commitment can be expected.

5.2.2.3.2.3.3.2 The impact of the context in which the institution is embedded: Learning does not take place in a vacuum.

In chapter four I argued that where some consensus about the roles and functions of the university exists tension between the institution and the state, and perhaps between the student and the institution, are probably minimal. I suggested that in a society where ethnicity is a fundamental element in the political structure and in the form and provision of university education, consensus is absent and conflict endemic. Very few White staff commented on the fact that the university had been shaped to give expression to an explicit political ideology of separate development. Black members of staff, on the other hand, not only made comment, but

argued ...

argued that in such a context trust is missing and commitment withheld. This is evident in the following comment:

"The point we have got to realise is that we are not teaching in a vacuum. We are teaching within a community that is affected by the bigger community, and time and again what happens in the outside community is reflected in what happens in class."

Arts faculty member.

Dilemmas and contradictions pervade the total situation. Two consequences were evident in the responses:

- (i) The 'double-bind' situation
- (ii) A lack of trust.

5.2.2.3.2.3.2.1 The 'double-bind' situation::

In the first place there is the complex 'double-bind' situation expressed by the following lecturer in the faculty of Science.

Respondent:

"You know students here are in a kind of system which they are in because they want to be in it, but which they are rejecting at the same time, because they realise they are not getting the best education."

Interviewer: You say they want to be in it?

Respondent:

"They have no choice and they have to get into it so as to be able to prove to themselves to some extent. This is extremely important because it influences one's commitment, the way one works ...

(long pause)

You are getting into a thing you know is not really the best thing, but you still know it is still going to benefit you in some way or other. It is not a relaxed atmosphere."

The emphasis on education in the student responses and what is believed will accrue from it, is evidence that they see their time at Fort Hare as a rare opportunity to achieve the status, the skills and security denied their less fortunate brothers. Yet there is a great deal of criticism of Bantu Education and all that it implies. The major reason given was that Bantu Education was designed to channel Black aspirations into the service of the ethnic homelands, whereas they saw their future as participants in a shared South Africa. So

"... the ...

"... the very university that is seen as providing the opportunity for personal advancement is seen at the same time as an instrument of political control."

Millar (1976).

Similarly, Ashby (1966) has pointed out that whereas the content of what is taught at the Black universities and the pattern and standard of achievement of the degrees offered does not differ significantly from what is offered in the White universities in South Africa,

"what the South African Government has done is to create in the 'Bantu' university colleges an environment utterly inimical to freedom of thought, an environment which puts young minds into intellectual quarantine for three years (the length of the average degree course), a veritable concentration camp."

Ashby (1966).

The network of economic, political and ideological constraints inevitably creates the frustrations evident in the responses described.

The need for self-esteem, dignity, for a psychological status, to be recognised as having some worth, and something to contribute, is basic. Where it is seen to be denied various strategies are adopted. In the staff interviews I suggested that one such strategy was to withdraw commitment from the institution and values it is seen to represent. White members of staff were generally ambivalent concerning this viewpoint, with the majority suggesting that the students' home backgrounds and the type of schooling received mainly accounted for the lack of commitment. Black members of staff, on the other hand, were more certain about what they saw as the root cause.

"If I were obliged through force of circumstances to attend an institution with which I am ideologically at odds, I would avoid any contact with the staff as much as possible. I would try to be a number or at best a name, do a reasonable job so as not to be pulled up for doing badly, and just do what is necessary."

Science faculty member.

The student responses reflect certain expectations, especially regarding status and material rewards although there is a pessimism about future change. The black staff are equally pessimistic and regard the constraints likely to be faced in society as having serious implications.

"If ...

"If a student, for instance, takes Arts subjects and has decided to become a teacher, they know at high schools there is a great shortage of teachers. In commerce, however, the students say: 'I want a commerce degree, I want to be involved in the economy of the country, I want to participate in commerce and industry, but have I got the opportunity?' This must affect their commitment and performance to some extent. They tend to say, 'okay, I am doing all this hard work but is it worth it after all knowing the discrimination in commerce and industry.'"

Economic Science faculty member.

As another colleague commented:

"If you come to university with that purpose how can you be committed in the way that we value commitment. The students and perhaps some staff are just doing something to get something."

Arts faculty member.

Such a situation also provides the students and staff with a built-in excuse for doing nothing, and for placing the blame external to oneself.

One Law faculty colleague expressed it as follows:

"From an early age you know what is happening to you in this country, you feel it because you are experiencing it. It is so easy to relate my experiences as a black person not because I tried to write them down so that I could remember them. I just have to think what happens to me every day. Whilst I feel whites are trying to keep me down I don't want a black rector because if things go wrong they can't then say he is taking certain attitudes or doing certain things because he is white we would not get the satisfaction of saying that. And yet things would not change here if de Wet (the present Rector) were replaced with a black man. The institution could not change all that much ... a black rector would not be allowed to, and whilst we may call him a 'sell-out' it would be more frustrating to deal with a 'sell-out' than with a white because when he is white you are facing him for what he is. If you say a black is a 'sell-out' he is still part of you.

So it is very hard in this situation and on this campus to talk about things rationally, and this is what many people don't understand."

Equally, it is easy to blame the authorities for failing to get black students to be proud of these institutions and to develop an enriching identification with both staff and students as a corporate body.

Black staff believe that the university administrators, the majority of whom are white, are inclined to think of the black student as a 'radical' in the negative sense of the word. They believe they think of him as an individual who confuses his priorities in 'wanting to be adult before his time' in that he is interested in national issues, and what is worse, is basically ungrateful. One professorial colleague suggested that

"The image which forces itself on the imagination of university bureaucrats appears to be one that says that the black student is an impatient, intolerant youth whose ideas and views are manipulated by agents outside the university community. In this view, the black university student is believed when he holds unpopular opinions, views and convictions to be part and parcel of a sinister conspiracy whose ideological base is none other than the creation of people like Karl Marx and his cohorts old and new."

5.2.2.3.2.3.3.2.2 A lack of trust

A second consequence and one already implied concerns a lack of trust. Learning requires a relationship of trust between the educator and the student. In a situation where trust may be withheld or restricted for no more valid reason than that teachers and what they teach are seen as representatives of the system, no real education is possible. When group loyalty exists in the face of what may be perceived as an oppressive regime the articulation of a minority view may call for considerable courage. But where this loyalty is regarded as superior to the expression of an independent judgement, the consequences of scholarship with its emphasis on the spirit of enquiry and speculation are very serious indeed. Some students have asserted that this loyalty is morally superior to the expression of independent judgement. The contention, that by surrendering one's individual judgement to someone else one loses one's own morality, was dismissed as a semantic nicety. The staff, both black and white, regard the students' passivity as indicative of their uncertainty and perhaps fear.

One member of staff suggested that docility in black students is a genetic trait, but the majority expressed opinions similar to the following:

" ... some ...

"... some of the things one would want to say I feel constrained to say because my students and I are not operating in an atmosphere which is supportive. Also, who else am I putting at risk? ... You know this in itself is an admission of the feeling of insecurity on my part!"

Arts faculty member.

This problem of openness and the consequent 'risk' to students is also reflected in the following description by a senior lecturer in the faculty of Arts:

" In a discussion on the Marxist view of a university and the method of polarization used in the Dutch universities, a woman student asked: 'Seeing this kind of situation, what do you think of a communist state forming universities all over the country, forcing those universities to use their ideologies as the basis for the constitution of that university and for whatever academically goes on in the university?' When she was speaking about this communist government I saw before me quite another government. I could feel it. She was referring to the Nationalist government forming black universities. Now I am not afraid of being controversial but I thought if I say one thing I could break whatever confidence there was in this class, and which allowed for such a question to be asked, and the 'freedom' felt to ask it. And if I say another thing, maybe I will be in big trouble tomorrow morning. So I gave her a 'principal' answer: 'I reject totalitarianism in whatever context, whether it comes from a university forcing its ideology on the people around it or from the state which forces its ideology onto a university.'"

I then asked this person to what extent he thought students could be open and honest as a consequence. He replied:

"Very few students, perhaps 3% to 4% speak their own minds, and of those who do and are critical I expect that if the security police were to see their papers they would follow it up."

Such is the situation faced by staff and students alike. Trust is hard-earned and in moments of crisis easily lost.

As one post-graduate student in the listener group put it:

"I cannot ..."

"I cannot be honest in this situation. Sometimes, like now, I feel like being honest, but usually I compromise so that it may please my lecturers. For example, I write essays in the way that pleases the lecturer. I know him. I cannot be honest to the extent that I am killing myself. I give him what he wants to hear."

Another suggested that students feel they cannot trust any lecturer. The dialogue continued as follows:

Interviewer: Why do you say that? What evidence do you have?

Respondent:

"Well in this I am influenced by the mass of students who say you must be wary of lecturers."

Interviewer: What about Black lecturers?

Respondent:

"With a White lecturer I don't trust him from the beginning. So he may help me to trust him more by the way he is dealing with me. Whereas with a Black lecturer I tend to trust him initially although this can change by the way he is dealing with me."

Confrontations between students and the university authorities have been a characteristic feature of the history of Fort Hare especially over the past decade. The sources of conflict have involved both national and domestic issues and have infused the atmosphere with tension and mistrust. Identification with the institutional norms is missing.

One recommendation which emerged from the Snyman Report on the University of the North was that one way of instilling a sense of pride in the university would be to allow students an open choice of where to study, where to attend university.

I suggested earlier that it was not surprising that there is evidence of a lack of commitment to an institution they come to not out of choice but out of necessity for a degree. This I argued reinforces the utilitarian conceptions of a university education.

Opening Fort Hare and other universities to students of all population groups was generally supported by most staff members. Fear was expressed, however, of the possible consequences should any general restriction be imposed on the number of students admitted. It was argued that in high status courses, for example, those offered by the faculty of science where selection already exists, a black student given his relatively deprived

schooling, would automatically be at a disadvantage.⁽²⁰⁾ Staff felt that any moves to end the isolation and 'intellectual quarantine' would be beneficial. In this sense black staff members were equally critical of what they call the 'white tribal colleges'. Moreover they felt that the opening of the university would be a purely 'cosmetic arrangement' without similar changes in society in general. As Nkondo (1976) has expressed it:

"The dignity of the academic status he enjoys does not rescue him from the perpetual insecurity and fear of living in a home in a township."

5.3 CONCLUSION:

Arising from what has been said and written by the staff and the students it would appear that the staff felt that the academic problems of first year students stemmed from:

1. their inability to analyse and synthesise factual material;
2. their inability to express facts and ideas adequately in English;
3. their inability to deal with abstract concepts and principles;
4. their poor level of preparation at school;
5. their inability to apply theory to practice.

In contrast first year students felt that their main academic problems were:

1. poor teaching strategies and techniques on the part of the lecturer;
2. poor test and examination techniques;
3. lack of knowledge about what is involved in learning and studying at university;
4. difficulties in adjusting to university work compared with school through poor study habits;
5. difficulties in coping with different academic demands at university compared with school.

In essence the staff perceived the academic problems of first year students in terms of inadequate preparation for university by the schools, coupled with difficulties of studying in a second or third language.

The students however perceived the problem in terms of their lack of whatever was needed to pass exams at university and to get a degree.

Although perceived differently it seems that these problems hinge around two important areas of conflict.

Firstly what the University staff believe to be the traditional task of the schools in preparing pupils for university study, and secondly what the

staff and students perceive to be the function of the University.

In the first case although it is conventionally believed that it is the task of the schools to prepare students for university study, the present situation in black schools in South Africa makes it very difficult to do this. The rapidly increasing population and the desirability of education for all means that the most important priority is to educate as many pupils as possible. Secondary to this paramount objective is the quality of school buildings and equipment, the quality of school teachers and the nature and quality of what is taught.

The priority for the senior black pupils being educated in this system is to pass the examination in order to have the chance of well paid employment and improved social status, and therefore also providing the chance for other members of the family to become educated. Secondary to this main objective is any intrinsic interest in an academic subject per se, or the joy of discovering new knowledge. With the emphasis on passing examinations at all costs, pupils rarely question what is taught, or challenge the validity of their textbooks or the opinions of their teachers.

Faced with the necessity of studying in a second language at school senior pupils and teachers are concerned primarily with mastering the vocabulary and content of school subjects. Little time is available for analysing and synthesising material or of solving problems related to abstract concepts and principles. These problems continue at university in the first year and are then also linked with what the student perceives to be the academic function of the university. Staff see the university as a place where students with a particular vocational orientation study to find out more about subjects in which they are particularly interested. In this case a university lecturer expects his class to be intrinsically interested in the subject matter which he is teaching.

In the case of black students the same pressures which have driven a pupil at school to succeed in examinations extend to university and make it imperative to get a degree. To these students it is the degree that is more important than the subjects or the subject matter. For this reason students often find themselves studying subjects for which they have little interest. To this is added the overall context in which the university is embedded and its influence on the perceptions of the students and the staff. The contradictions which flow from the network of economic, political and ideological constraints create the frustrations and seeming lack of

commitment which bedevils the teaching-learning situation.

These problems are not necessarily a monopoly of black university students but for various reasons which have emerged they seem to be of a more serious and sinister character. Students believe they are 'under achieving' in terms of their real potentials. Self-confidence and self-assertion is undermined by a host of contextual features and I have suggested that these create the tensions which never seem to be far below the surface and account for the volatile mass behaviour of students during moments of crisis. White western culture is seen to offer rewards and career opportunities and is striven for. Yet herein lies a paradox and creates tensions. Education is a means of competing for these rewards but the constraints within society are seen to prevent the realization of their dreams and provide a useful scapegoat.

Furthermore, an education which is seen to offer an opportunity in which they can 'prove' themselves is at the same time rejected because of its identification with 'the system'. No corporate body exists and staff and students appear to 'negotiate through the remnants of a torn fabric'.

FOOTNOTES

- (1) 1976 - 259 males and 165 females = 424
 1977 - 221 males and 179 females = 400
 1978 - 314 males and 208 females = 522.
- (2) Psychology I, Private Law I, Physics I, English I, Chemistry I, Economics I, Accounting I.
- (3) Students are not alone in making these criticisms. During 1979 an increasing amount of criticism has been levelled by staff members culminating in a senate commission of inquiry into matters relating to the library.
- (4) In one matriculation class (83 pupils in one class) at a school ten kilometres away from Alice I asked the pupils how many of them, if they passed their matriculation examination, hoped to go up to university (to Fort Hare). Some 60% indicated their intention to do so. I then asked this group how many of them had been to East London - 12%, how many had been to East London harbour - 4%, how many had been to an airport - 2%, how many had seen television - 0%, how many listened to the radio - 93%, how many listened to English radio broadcasts - 14%, how many went to the cinema at least once a month - 0%, how many belonged to a library (other than the school one) - 0%.

Whilst white institutions have traditionally met the higher educational needs of middle class students from homes which reinforce and supplement the intellectual and cultural ethos of the university, these black students are largely drawn from low-income families whose world-views, life styles and experiences are very different to those expected by the institution. On the other hand some 60% of students coming to Fort Hare come from urban areas and 22.6% of the sample of students interviewed are second generation university/college students.

A colleague in the Faculty of Arts had a similar experience. He offers a course which assumes a level of general knowledge in world affairs. It is hard to believe that one student in his pre-course general knowledge test was serious when he suggested that Andrew Young was the Secretary General of the United Nations which had its headquarters in Johannesburg. Yet from all accounts the student was being serious. Perhaps this student is a very good actor.

- (5) A colleague from the Faculty of Science said to me:

"Alan, I would never allow you to do this (tape record the interviews) if I did not know you well and trust you."

The fear of the possible consequences made the students equally reluctant to talk freely about their problems and the university when I tried to tape record the interviews. I soon abandoned any attempt to do so. Nonetheless I was surprised to find my colleagues reflecting similar fears. Whether these are imaginary or not is irrelevant. They are real to a third of the staff.

- (6) The questions asked were: Is this you these people are talking about? Is this true for your fellow students? Are the staff accurate in their perceptions?
- (7) Following lengthy discussions during which issues concerning the possible consequences for themselves should a tape recording be made, I found it less threatening not to record the discussions. As a consequence, perhaps, the students were more critical.
- (8) Core-notes. These are, as the name implies, basic notes on a particular topic.
- (9) Although the majority of the staff interviews suggested the quality of schooling and home background as possible factors accounting for some of the difficulties faced by first year students, very few felt they were well enough informed to comment in any depth. Black members of staff were more forthright and especially emphasised the disparities between white and black education which currently exists. Science faculty staff were particularly critical of the lack of facilities in schools especially as they believe that rote-learning practices are encouraged in situations where materials and resources are limited. As one colleague put it:

"A person can explain to you about something but the best teacher is going through it and experiencing it for yourself. Unfortunately there is limited opportunity in our schools."

Science faculty member.

Seretlo (1973) has commented on the consequences of a school laboratory with only the ...

"teacher with a piece of chalk in hand, a blackboard and his tongue."

As he says:

"All too frequently that teacher may be describing a piece of apparatus he himself has never seen, let alone handled."

Other staff have commented on the lack of relevant general knowledge of the students (see footnote 4) and how this creates difficulties when certain assumptions are made.

A colleague who teaches accountancy had this to say:

"The background assumptions on which this notion of commerce (he was referring to his course) is based is completely foreign. We have to bridge that gap. In other universities certain things can be taken for granted whereas here they have to be taught. For example, cheque books, the type of account you may have at a bank, when you speak of an invoice you may not assume they know what you mean. You need to show them ..."

I suggested to him that general entrepreneurial skills were not something new to the African. He replied:

"... even where there is a fair amount of cash handling you find this is a very secret operation by the parents. The child is never really involved and never really knows what money the parents have."

He seemed surprised when I pointed out that this was not necessarily unique to the black family.

Other factors which were suggested, all with some reservations, were religious beliefs, environmental factors, an iconoclastic view of knowledge and an authoritarian home and school background. Concerning the latter there was general agreement and staff believed this accounted to a greater or lesser extent for the seeming passivity of the students. Groenewald (1976) provides a concise and well documented summary of literature related to the traditional world culture of the black child, and suggests the importance of recognising this when evaluating black education.

Black members of staff in particular point out that the context in which the university is embedded provides a useful excuse for poor scholarship. One area which has not been explored with the staff or the students concerns their cultural experience. Apart from being ill-equipped to undertake such a study, I was aware of the impossibility of sharing a common cultural experience with the students and black staff. What I have been able to describe, however, is their response to a particular contextual experience. Whether there are innate cultural reasons for experiencing the problems they do and for responding in the way they do, cannot be answered on the basis of the evidence I have collected. Nor was this the focus of this study. The literature on the cultural background of Africans is mostly written by white anthropologists and psychologists and, whilst valuable, I suggest an entirely new perspective will be opened up as more black scholars enter the field.

Certain texts have been consulted, for example, Duminy (1967), de Ridder (1961), Grant (1969), Groenewald (1976), Holleman (1964), Nel (1967), Paden and Soya (1970), Schapera (1937) and Tobias (1972), but it was irrelevant to the present study, with its particular focus, to report what they have written without investigating this particular problem. My concern is primarily to describe what problems are encountered by first year students and to describe how they respond to a particular situation and are seen to respond to it by their teachers.

- (10) A major study of this facet of the students' academic experience is necessary by someone qualified in this direction.
- (11) It was beyond the scope of this study to investigate the issues concerning assessment. Nonetheless, this is not to deny its influence on student perceptions and, where relevant, comment will be made.
- (12) Two examples:
 - 1. Between 1976 and 1978 attempts were made by the Department of Teaching Science, a department concerned with the practical training of teachers, to change its name to the Department of Curriculum Studies. It was felt that this name better reflected the nature of the work being carried out in the department. Also there was confusion regarding the name which in Afrikaans is Onderwyskunde. When translated as Teaching Science it left people wondering whether it was concerned with science education or the

science of teaching. After passing through faculty and senate the matter went to the University Council and the Minister of Bantu Education. Here the change of name was refused. Upon enquiries it transpired that opposition to the change of name was based on the argument that no such department existed at a white or other university in South Africa. Whether the change of name was relevant to the direction being taken by the department appeared to be of no concern. Being the same as someone else was.

2. In Private Law the lecturer adopted a different emphasis to the notes from the University of South Africa. Students complained that they were being 'short changed'. Contrast this with the demand to 'lower standards' in Economic Sciences. (See page 217).
- (13) The University of the Witwatersrand has found that black graduates fare worse than their contemporaries from white universities especially in the sciences and engineering. Black students are allowed to go to the University of the Witwatersrand to study engineering once they have completed at least one year at an 'ethnic' university.
 - (14) These are only two of many possible alternatives, but whether an indigenous 'solution' is possible in a country so much the focus of world attention is doubtful.
 - (15) A notable feature of a recent conference on Education for Development organised by the University of Transkei (an independent homeland state) in May 1979 was the persistent call for adopting 'unconventional' methods yet with a refusal to consider or even recognise the political situation in Southern Africa today, or that of Transkei. The tension between the psychological need to express and be seen to express their independence especially evidenced in the Transkei's abandonment of the syllabi of the detested Department of Bantu Education, and the desire not to be seen as being different or having lower standards, as evidenced in the adoption of the syllabi of the Cape Education Department, dominated discussion.
 - (16) Buber (1958) has argued that 'us' and 'them' constitute a linguistic attitudinal form expressive of distance and relation.

- (17) Eraut and colleagues in the Department of Economics at the University of Sussex designed a problem-centred economics curriculum. They regarded it as being extremely exciting. Unfortunately the students were not excited by it. Eraut came to the simple conclusion that the students never engaged in the processes and thinking which created the curriculum. They merely received the end-product, they were not motivated and hence never developed the skills intended.
- (18) It is beyond the scope of this study to consider the level of identification felt by staff to the institution. Whilst staff complain about the students' view that this is a place one comes to for a degree and that that is where their commitment stops, equally, I have often wondered whether any staff see the institution as a place to which one comes daily between 8.00 a.m. and midday so as to claim one's pay cheque at the end of a month. One impression gained during discussions with staff is that initial enthusiasm on arrival at Fort Hare becomes tempered by increasing cynicism (cf. footnote 16).
- (19) These tendencies are not unique to staff here. Katz (1969) documents various conceptual and theoretical approaches to academic performance among black students in America. Wax and Wax (1971) have argued that the notion of cultural deprivation does not enjoy consistent empirical support and has become a convenient ideology to indict black people and the black family. This, they argue, draws attention away from contextual features which attempt to maintain power and privilege. An extensive literature exists on the ideology of Cultural Deprivation. (See Cummings, 1977).
- (20) During 1976 Dr van der Ross, Rector of the coloured University of the Western Cape, aired similar reservations concerning admissions to medical school. He argued for a form of 'positive discrimination'.

TABLE I
PROBLEMS IDENTIFIED BY STUDENTS

PROBLEM	% STUDENTS IDENTIFYING THE PROBLEM
<u>5.1.3.1 PROBLEMS ARISING FROM STUDENTS' OWN ABILITY AND BEHAVIOUR</u>	
5.1.3.1.1 Insecurity and anxiety about own ability	38%
5.1.3.1.2 Inability to cope physically with the required amount of work	24%
5.1.3.1.3 Inadequate comprehension and inability to communicate freely in English or to use English as a medium	68%
5.1.3.1.4 Poor study habits and study skills	56%
5.1.3.1.5 Poor test/exam techniques	77%
<u>5.1.3.2 PROBLEMS ARISING FROM SUBJECT CHOICE AND LACK OF COUNSELLING</u>	
5.1.3.2.1 Lack of knowledge about individual subjects	38%
5.1.3.2.2 Lack of knowledge of what it takes to learn and how to study at university	73%
5.1.3.2.3 Inadequacy of the first year orientation week	24%
<u>5.1.3.3 PROBLEMS ARISING FROM THE GAP BETWEEN SCHOOL AND UNIVERSITY</u>	
5.1.3.3.1 Difficulties in adjusting to university work and study methods	68%
5.1.3.3.2 Difficulties in coping with different teaching styles	54%
5.1.3.3.3 Difficulties in coping with the different academic demands	66%
5.1.3.3.4 Social problems associated with the transition from school to university	22%

5.1.3.4	<u>PROBLEMS CREATED BY ADVERSE PHYSICAL AND SOCIAL CONDITIONS ON THE CAMPUS</u>	
5.1.3.4.1	Noise in residences	73%
5.1.3.4.2	Dislike of having to share rooms	56%
5.1.3.4.3	Lack of facilities for normal social activities	21%
5.1.3.4.4	Lack of heating during winter	8%
5.1.3.4.5	Inadequacies in the Library	69%
5.1.3.5	<u>PROBLEMS RELATED TO THE ASSESSMENT AND TESTING PROCEDURES OF THE UNIVERSITY</u>	
5.1.3.5.1	Failure of lecturers to make examination and test requirements explicit	48%
5.1.3.5.2	Panic about the first test counting towards the year mark	42%
5.1.3.5.3	Inability to write and think fast enough	31%
5.1.3.5.4	Lack of sufficient preparation time between tests	12%
5.1.3.5.5	Number of tests	56%
5.1.3.6	<u>PROBLEMS RELATED TO THE STUDENTS' PERCEPTION OF STAFF ATTITUDES TOWARDS THEM</u>	
5.1.3.6.1	Poor teaching strategies and techniques on the part of the lecturer	78%
5.1.3.6.2	Lack of empathy with students on the part of the lecturer	43%

TABLE 2

SUMMARY OF THE NUMBER OF RESPONDEES

FACULTY	N
1. Theology	2
2. Arts	19
3. Science	23
4. Agriculture	11
5. Education	9
6. Economic Sciences	5
7. Law	6
TOTAL	75

TABLE 3

FACTORS INFLUENCING SATISFACTORY ACADEMIC PERFORMANCE OF FIRST YEAR STUDENTS IN YOUR CLASSES

Ranked position	FACTOR		A major factor influencing performance	A minor factor influencing performance	An unimportant factor influencing performance
4	1. Level of preparation at school	1	69%	24%	7%
	2. Regular class attendance	2	40%	35%	25%
	3. Participation in class discussion	3	31%	47%	22%
	4. The asking of questions in class	4	40%	42%	18%
	5. Asking for help from lecturers when in difficulty with work	5	58%	33%	9%
1	6. The ability to analyse and synthesize factual material	6	76%	22%	2%
3	7. The ability to deal with abstract concepts and principles	7	78%	22%	0
5	8. The ability to apply theory to practice	8	76%	13%	11%
9	9. The ability to read English effectively and efficiently	9	68%	24%	8%
7	10. Having effective and efficient study habits and skills	10	62%	22%	16%
2	11. The ability to express facts and ideas adequately in English	11	68%	24%	8%
	12. The ability to make and take notes	12	44%	31%	25%

TABLE 3 (cont.)

FACTORS INFLUENCING SATISFACTORY ACADEMIC PERFORMANCE OF FIRST YEAR STUDENTS IN YOUR CLASS

Ranked position	FACTOR		A major factor influencing performance	A minor factor influencing performance	An unimportant factor influencing performance
6	13. Submitting assignments and essays on time	13	13%	47%	40%
	14. Working consistently and not leaving test/examination revision to the last moment	14	64%	24%	12%
	15. Having a positive attitude towards course content	15	44%	40%	16%
	16. Having a positive attitude towards the lecturer	16	29%	42%	29%
	17. Having good examination and test techniques	17	43%	44%	13%
10	18. The ability to memorise factual material	18	20%	44%	36%
	19. Choosing subjects for which the student has the necessary ability and interest	19	47%	40%	13%
8	20. Displaying an intrinsic and active interest in the course work	20	62%	29%	9%

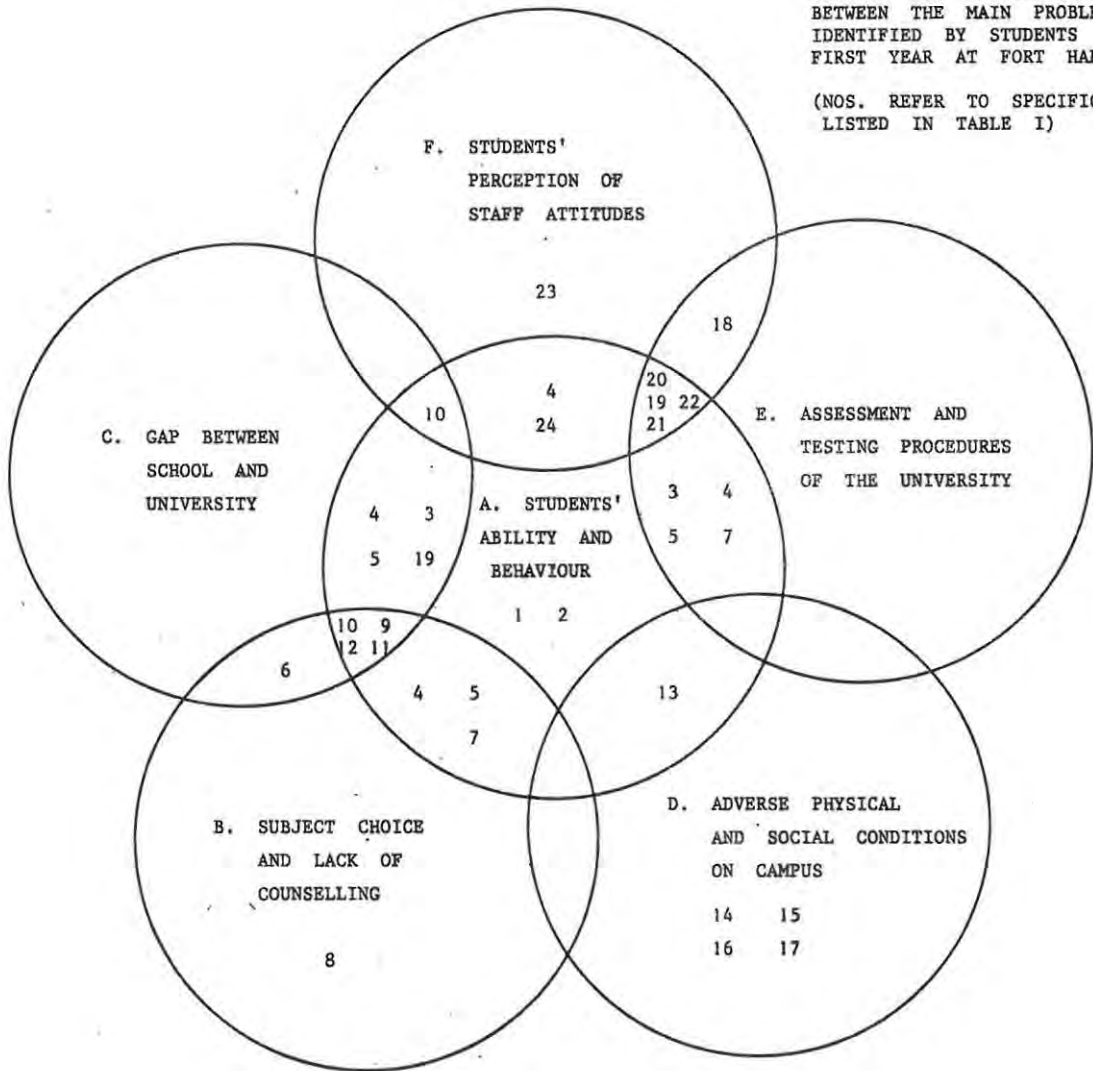
SUMMARY OF THE TOP FIVE FACTORS AS RANKED IN SECTION C OF THE QUESTIONNAIRE

Rank	Statement Number	FACTOR
1	6	The ability to analyse and synthesize factual material
2	11	The ability to express facts and ideas adequately in English
3	7	The ability to deal with abstract concepts and principles
*4	1	Level of preparation at school
5	8	The ability to apply theory to practice

* Apart from factor one (ranked 4th) the others are all concerned with the linguistic competence of our students

FIG. I DIAGRAMMATIC SUMMARY
SHOWING THE INTER-RELATIONSHIPS
BETWEEN THE MAIN PROBLEM AREAS
IDENTIFIED BY STUDENTS IN THEIR
FIRST YEAR AT FORT HARE.

(NOS. REFER TO SPECIFIC PROBLEMS
LISTED IN TABLE I)



CHAPTER SIXHOW STUDENTS STUDY

- 6.1 Introduction
- 6.2 Problems encountered
- 6.3 Procedures Adopted
- 6.4 The Survey of Study Habits and Attitudes
 - 6.4.1 Introduction
 - 6.4.2 Methods
 - 6.4.3 Results
 - 6.4.4 The Content Analysis
 - 6.4.5 The Item Analysis
 - 6.4.6 Discussion
- 6.5 A Reconsideration
- 6.6 Conclusion
- 6.7 The Students' Comments: what they said
 - 6.7.1 Introduction
 - 6.7.2 Procedures Adopted
 - 6.7.3 A Review
 - 6.7.4 Common Patterns
 - 6.7.5 Conclusion
- 6.8 Evidence from observing two courses
 - 6.8.1 A basis for enquiry
 - 6.8.1.1 Introduction
 - 6.8.1.2 Problems encountered
 - 6.8.2 Learning Experiences
 - 6.8.2.1 The development of student attitudes
 - 6.8.2.2 The academic stance of the staff
 - 6.8.2.2.1 Student motivation
 - 6.8.2.2.2 The value of assessment
 - 6.8.2.2.3 Rapport in the teaching-learning situation
 - 6.8.2.2.4 Identity

6.8.3 What is the nature of the contract between the students and the staff:

The Law Class

6.8.3.1 The Instructional Situation

6.8.3.1.1 How did the lecturers define the situation?

6.8.3.1.2 How, if at all, was this definition maintained?

6.8.3.2 How did the students respond?

6.8.3.3 How are these students motivated in this instructional situation?

6.8.4 What is the nature of the contract between the students and the staff:

The Physics Introductory Practical Course

6.8.4.1 The Instructional Situation

6.8.4.1.1 How did the lecturer define the situation?

6.8.4.1.2 How, if at all, was this definition maintained?

6.8.4.2 How did the students respond?

6.8.4.2.1 Negotiating with the staff

6.8.4.2.2 The impact of the manual

6.8.4.3 How are these students motivated?

6.8.5 Conclusion.

CHAPTER 6

HOW THE STUDENTS STUDY

6.1 INTRODUCTION:

The evidence in chapters four and five relating to the students' perceptions of the university and of knowledge, their perceived problems and those of the staff and the probable mismatches reflect a particular institutional ethos. Students appear to think that courses are not so much something to do as something done to them. Staff seem to reinforce this in varying ways by their teaching and research practices, although few interpret the consequences of their actions in this way.

It would seem that students do things they have been told to do and which they assume must be important, but which would appear, at times, to make little sense to them.

If then, as I suggest, students view courses as something 'given to them', to what extent is this reflected in the way students say they work?

6.2. PROBLEMS ENCOUNTERED:

A number of difficulties were experienced in investigating this.

First, there was the question of method. In the early stages of this investigation the intention was to use the Brown and Holtzman Survey of Study Habits and Attitudes test as a screening device and to follow this up with a study skills programme. This was to be supplemented by interviews and the use of open-ended essays. A shift in paradigm occurred, however, as my perception of the complexities changed. (cf. Chapter two).

Second, students seemed keen to talk to me and write descriptions of how they studied and resolved certain problems whilst they believed they had something to gain from the exercise. When I seemingly 'failed' to help them or when it appeared that I was prying too deeply, or when no genuine enthusiasm existed for what was being suggested, a 'screen' seemed to come down.

Third, 'instant solutions' seemed to be wanted, and I came to think that perhaps I encouraged this by suggesting certain fairly clearly defined skills and procedures as a 'solution'. Yet at the same time I tried to wean

them ...

them of this outlook and in this sense probably appeared 'unhelpful' to them. Fourth, there remained the teacher-pupil, white staff member-black student relationship, which permeated the entire situation.

6.3 PROCEDURES ADOPTED:

First, the Survey of Study Habits and Attitudes test was applied according to the procedures laid down.

Second, short essays were written in response to the following question:

..."describe how you study, i.e., how you go about your work in all your subjects, both throughout the year and for tests and examinations."

Included was a request for them to explain how and why they studied differently in their different courses should they in fact do so. The essays were read and a content analysis was undertaken. Common procedures were noted and students were grouped into two categories:

- those with a clear exposition of how they work, and
- those whose outlines were muddled and lacking in clarity of thought and order.

These criteria are essentially linguistic for there was no means of proving that the students actually worked as described. As 57% of the population supplied their names I was able to perform a Chi Square test of association on this group using the end of year examination results as the criterion.

Third, two classes were observed. Invitations to observe the first year history of law course and the first year introductory physics practical course enabled me to analyse in greater depth issues raised by the students in the essays and interviews.

6.4 THE SURVEY OF STUDY HABITS AND ATTITUDES (SSHA): (Form H) (Appendix 6.1)

6.4.1 INTRODUCTION:

Initially I had planned to include the variables produced from this test in the prediction study. In the first year of the study 422 first year students wrote the test. As I have explained in chapter two, although this test had not been standardized for black students, the fact that the test had reportedly achieved success as a predictor of academic success in the United States with Negro students (Corlett, 1969), in the United Kingdom (Cowell, 1969) and with white students in South Africa (Engelbrecht, 1975) gave some justification for using it.

6.4.2 METHOD:

The test requires the student to rate himself on each of 100 statements according to whether he

- | | |
|---------------------------|---------------------------|
| (1) rarely (or never) | (0% - 15% of the time); |
| (2) sometimes | (16% - 35% of the time); |
| (3) frequently (or often) | (36% - 65% of the time); |
| (4) generally | (66% - 85% of the time); |
| (5) almost always | (86% - 100% of the time); |

does or feels as the statement suggests. For scoring purposes, the S.S.H.A. is divided into four subscales:

- (1) Work Methods: concerned with the use of effective study procedures and the skill and efficiency in doing academic assignments.
- (2) Delay Avoidance: concerned with the promptness in completing assignments and the ability to resist distractions.
- (3) Teacher Approval: concerned with the feelings and opinions about teachers, their classroom behaviour and their methods.
- (4) Education Acceptance: the approval of educational objectives, practices and requirements.

The first two subscales (Work Methods and Delay Avoidance) are added together to give a score of Study Habits, which is said to measure academic behaviour. The last two subscales (Teacher Approval and Education Acceptance) are combined to give Study Attitudes which is a measure of scholastic attitudes and beliefs. The total score which is arrived at by the combination of Study Habits and Study Attitudes is called Study Orientation. There are twenty-five statements in each subscale.

6.4.3 RESULTS:

Two methods were used to test the reliability of the tests, the test-retest method and the Spearman-Brown split-half reliability method.

With the test-retest method a period of two weeks elapsed between each administration, this being regarded as adequate to avoid either an artificially too high or too low reliability coefficient. Table I* shows these coefficients on the four primary scales.⁽¹⁾

Although the reliability coefficients obtained using the two methods are substantially the same, the relatively low reliability obtained suggested

that the questionnaire was not suitable for the test group to which it was applied.

Various conditions can affect the reliability coefficient. Downie and Heath (1974) mention the length of the test, whether or not it is timed, and the homogeneity of the test group, as important influences. In the case of the test length, this was one reason for using the corrected Brown Spearman formula. The test is not timed although I found the majority of students completed the test in about one hour. Concerning the homogeneity of the test group the fact that they were all matriculants with University entry qualifications may have perhaps reduced the reliability. Nonetheless, with a reliability coefficient of less than .9, I felt justified in discarding the instrument.

Before making a final decision, however, I performed a content analysis of the test statements to see whether or not ambiguities in language could possibly have influenced the reliability coefficient. This was followed by an item analysis to detect the questionable statements.

6.4.4 THE CONTENT ANALYSIS:

I was primarily concerned with the question: What did the students understand by the various statements? The procedure I adopted was:

- (i) to make a list of any dubious terms or statements in the tests;
- (ii) to ask three colleagues, all experienced in the use of English as a second language, to consider the test from a linguistic point of view and to comment on my original list;
- (iii) to ask a group of post-graduate Education diploma students to provide me with their definitions or understanding of the terms or statements included in the final list. The purpose of this was to see whether or not a group of students, by now experienced⁽²⁾ in the use of English as a second language, expressed any ambiguities concerning the terms or statements.
- (iv) Finally these items were checked to see whether they corresponded with the items which were rejected in the item analysis.

* The list (Table 2)*provides in point form the dubious terms or statements finally reached following discussion with my colleagues⁽³⁾ and found to be ambiguous by the post-graduate students. Most concern the meaning and value placed on them and in themselves reflect obvious difficulties.

The instructions ask respondents to place their replies on a five-point scale from 'almost always' to 'rarely'. Although a percentage of time is associated with each, the evidence from my colleagues and the post-graduate students suggests an ambiguity of terms in the five-point scale. For example, difficulty was found distinguishing between frequently (or often) and generally, and between generally and almost always. The nature of the statements, especially those related to the attitudinal scale, would make a reduction to a 'yes'/'no' type response limiting in its application, but the subtle differences between the five options could partially account for the poor reliabilities obtained.

Apart from the meanings which can be associated with the various terms or statements, the assumptions underpinning the statements reflect a particular view of what is a positive attitude to study and what are 'good' methods of studying. Marks are awarded when the student responds in the 'right' way. Certain attitudes and practices are regarded as correct, others incorrect. For example, the practice of not working and studying on one's own (items 5 and 93), of memorizing work without fully understanding it (item 18), of not keeping one's place of study neat and tidy (item 29) and of allowing interruptions at home and outside to disturb one's studies (items 33, 53, 61, 69, 77) are not scored positively. Yet for most of the students such conditions are the norm. Most homes are crowded and small, there is little opportunity to have a separate and private place of studying, and many schools have group 'homework' sessions immediately after school ends to overcome this difficulty. On the other hand, when students come to university the opportunity to work on one's own in relative peace exists. But initially with these first year students, who hitherto have been 'supervised', these opportunities seem not to be recognised for what they are.

Similarly with the items concerning study attitudes. There exists very little choice of subjects at school level and the evidence presented elsewhere in this thesis suggests that subjects are chosen not for any intrinsic interest one may have in them, so the scoring on items 8, 12, 24, 36, 64 and 75 is likely to be affected adversely in terms of the test criteria. The schools from which most of these students come are authoritarian in nature, with direct teacher instruction to the pupils. Pupil participation and initiative in the formal learning situation is limited very often to rote memorization (cf. item 100). Hence the notion that teachers 'boss too much' or are too 'set in their ways', or 'pretend to know everything' (items 19, 23 and 39), are not likely to present a problem

for ...

for these students. Similarly, teachers do do most of the talking in Black classrooms, so that the issue of talking 'too much' (item 47) is not a problem. The evidence in chapter four reveals the high value placed in a university education by these students. Very few are likely to agree with the statement that it is not worth the time or money spent on it (items 56 and 84). This belief in knowledge or learning is likely to cause distortions in replies to item 67 more especially as sport receives a low priority in the schools from which they come. Marks are seen to reflect education and learning by the majority of these students (chapters four and five) so the subtle distinction posed in item 71 is likely to be lost.

6.4.5 ITEM ANALYSIS:

Finally an item analysis on each subscale was carried out. Those items with an item discrimination index of below 0.20 were rejected. Any item between 0.20 and 0.40 was regarded as doubtful. (Table 3)*. The procedure adopted was that prepared for the United States Educational Testing Service by Chung-Teh Fan (1952). By it an item discrimination index is deduced from tables. This is a correlation which corresponds to the given value of pH and pL (the proportion of correct responses in the highest 27% and the lowest 27% respectively).

The items listed in Table 2 show a marked similarity to the items rejected and shown to be doubtful in Table 3. There is no intention to suggest a 'cause-effect' situation but the evidence suggests that linguistic and value differences could account for the relatively poor reliability coefficients obtained.

6.4.6 DISCUSSION:

Having undertaken the item analysis the decision was whether or not to proceed with the construction of a study habits and attitudes inventory. By progressive refinement such a development is possible, but what was more relevant now was what purpose such an instrument could serve and more especially on what assumptions about learning would it be based? Initially such an instrument could be seen as a screening device to highlight 'weaknesses' which could then be remedied through a study skills programme. But after speaking to increasing numbers of students and having read more of what they wrote, I became aware that there was no single, all-embracing successful study method. I came to realise that learning and studying are essentially individual and personal and that the need to know why a student was experiencing study difficulties was perhaps more important.

* Page 318,

6.5 A RECONSIDERATION:

The general shift which took place in the research paradigm has been discussed earlier (Chapter two), but the issues raised are relevant to this particular case. The movement in my own thinking was in line with that which has occurred in research on student learning over the past five years. This has moved from the essentially reductionist approach of the nomothetic tradition to the essentially holistic approach of the ideographic tradition. (cf. Hartley and Davies, 1978, Marton and Saljo, 1976, Laurillard, 1978, Miller and Parlett, 1974, Northedge, 1976 and Bliss and Ogborn, 1977). In essence it has been a shift from the linear cause-effect relationship to a symmetrical relationship of mutual cause and interaction. In practice this has meant that the attempted isolation of various 'cause' variables followed by the prediction of the 'effect' event is being questioned. The contrary is being proposed, namely, that in a symmetrical relationship

"... events cannot be observed separately and they in fact do not exist independently of the interactions between them."

Elton and Laurillard, 1979.

As these authors point out, once this shift takes place it is no longer possible to explain events in terms of cause and effect. They go on to make a case for interpreting the embedding structure that accounts for the relationship between students and their work, to study the patterns of events, so that they can be interpreted in terms of the embedding structure, and to question whether the relationships are meaningful and not simply whether they exist.

When this study began it was my intention to devise a study skills programme based on the specification of behavioural objectives, learning experiences and criteria. The assumption was that in providing the students with a repertoire of skills and concepts these would then be transferred to the particular learning situation by the individual student. But as I reflected more upon this, and upon the seeming failure of students to transfer what they had learnt in one situation to another. (cf. Coles, 1977, Britton, 1975, Perry, 1959, James, 1978, Heywood and Montague-Pollock, 1977). I was left with the question: 'What is being transferred?'. Any techniques-training embodies certain assumptions about the purposes of the skill or technique or of studying in general. Within the behavioural tradition, these concepts are spoken of in the same way, in the belief that a concept is formed by the observation of the characteristics common to a set of

objects ...

objects or situations. This idea of a concept is closely tied up with the meaning of words, and the view that a word acquires its meaning by referring to something, and that the learning of meaning, concept formation, follows a specific process by which meanings of words are learnt. Hence the process of concept formation is one of abstraction from classes of objects or situations; it is one of definition.⁽⁴⁾ It was with this that I began to take issue.

Wittgenstein (1953) argues that the

"idea of a general concept being a common property of its particular instances ... (is) ... too simple."

In his description of 'games' he points out that all games do not have something which is common. Instead there is a

"complicated network of similarities ..." (para. 69ff).

He is not saying what a concept is like, but that the notion of a concept as a common attribute is too limiting and limited.⁽⁵⁾ Moreover, even when having learnt a concept by holding a picture or abstraction in one's mind, this alone, he argues, would not be sufficient since one must also understand how this abstraction is used. So in the case of explaining a word or meaning ...

"I shall explain these words to someone who, say, only speaks French by means of the corresponding French words. But if a person has not yet got the concepts, I shall teach him to use the words by means of examples and by practice. ... And when I do this I do not communicate less to him than I know myself." (para.208)

Wittgenstein, 1953.

Hence learning a concept involves more than simply abstracting common attributes or attaching a label to a class of things, for although a rule has been given we do not know how to apply it outside the limited circumstances.

This question of what it is to know or how this comes about has been a central and fundamental problem throughout the history of thought. It was posed in Plato's Meno:

"But how will you look for something when you don't in the least know what it is? How on earth are you going to set up something you don't know as the object of your search? To put it another

way ...

way, even if you come up against it, how will you know what you have found is the thing you didn't know?"

Hamlyn (1978).

Marjorie Grene (1966) has shown how the 'dream of a manifest truth' has a very long history, how Plato, Aristotle and Descartes all suggested versions of this ideal of impersonal, explicit and final knowledge. She finds no 'solution' to the problem in the works of more recent philosophers such as Karl Popper whose views she argues are similar to Plato's in that Popper is arguing for a wholly explicit and final single method of science, namely, the knowledge of truth through the refutation and falsification of conjectures we somehow happen to have. Polanyi's solution to this problem (Polanyi, 1973), on the other hand, rests on the distinction between two kinds of awareness - focal and subsidiary. The kind of knowledge grounded in these two kinds of awareness is 'knowledge by attending to' and 'knowledge by relying on'. No knowledge is, or can be, wholly focal, and Polanyi argues that in the case of a problem the subsidiary aspect increases.⁽⁶⁾ He argues that we may not know, in the focal sense, what we are looking for when faced with a problem, and yet we can still look for a solution because we rely in looking for it on the clues to its nature, clues through which somehow we anticipate what we have not yet clearly understood. Such clues, he argues, are held in 'subsidiary' rather than in 'focal' awareness and are aspects of ourselves. They are, he says, points in our own attitude, skills, memories and hunches, and we live ...

"in the tension between what we are and what we seek; between the world whose facticity we share and ourselves whose shaping makes the world a world."

To him, then, knowing inheres in action although it is only transiently sensed in action. Polanyi's central thesis is that knowledge is always personal. The impersonal aspects of knowledge arise from and return to the personal participation in the search for and acceptance of the object to be known. Moreover, our explicit awareness, the focal core of consciousness, is always founded in and carried by tacit acceptance of something not explicit i.e. one tacitly knows because of subsidiary experience (pages 95ff). As such, he argues, knowledge is not and cannot be wholly explicit. It is unspecifiable for we start not from formalisms but from unspecifiable components. These are personal and ...

"they ...

"they exist because knowing always expresses a personal commitment, and a commitment can never be wholly reduced to or exhaustively stated in non-committal form."

If, therefore, I am concerned with developing the conceptual framework which students bring to bear on a particular subject, then the restrictive reductionist skill approach and its epistemological assumptions, which characterised my initial intention, would have stimulated or reinforced a 'static' view of knowledge and what Northedge (1976) calls 'perfunctory learning'. Developing a test instrument would be to root this investigation in the linear, cause-effect tradition and in so doing deny one the opportunity of tapping the richness of the complexities in the relationship between the students and their work. Moreover, an inventory of the S.S.H.A. type would be based on certain assumptions, assumptions about the 'correct' way to study or work, assumptions about how one learns, and assumptions about how learning is facilitated. These, I suggest, deny the uniqueness of any learning situation.

Part of a student's learning involves coming to share hermeneutically the same meaning frames with practitioners in the field, and in so doing he becomes committed not only to the same symbolic generalizations and theories, but also to the same beliefs in certain types of 'models' and explanations to the same sets of values. So by immersion into a frame of meaning and through what might be thought of as cognitive learning the student learns things that might be thought of as coming under the heading of affective. (cf. Atkinson and Delamont, 1976). Moreover, as Pring suggests, this affective learning is not just something which happens to accompany cognitive learning, it is an essential part of it.⁽⁷⁾

6.6 CONCLUSION

Learning, then, is far more complex than is implied by the labels, cognitive and affective, and, although the distinction may be a convenient one, problems are likely to arise because the classification of learning into cognitive and affective is normally done by a member of a community, sharing the particular disciplinary matrix. Such a person, while able, perhaps, to identify cognitive learning, will probably be unaware of the affective learning that exists for the student who does not yet share the same values. Thus there is a tendency to perceive the difficulties experienced by 'weaker' students as being less than they are. Furthermore, such learning will also differ from student to student and this will not depend simply on their previous

learning experiences but on the character and attitude of the student as well.

If, then, as I have been arguing, a concept is not simply an abstraction from a class of things or events, we cannot talk of transferring concepts in the same way as transferring skills. And if skills, including those in any study skills programme, are more than the behavioural model would have one believe, are as Polanyi has suggested actions or operational principles which presuppose certain principles or premises which cannot be discovered focally prior to the performance, nor even understood if explicitly stated by others, before we ourselves have experienced its performance, then to talk of transfer in a discrete sense, is meaningless. All 'language games', or 'meaning frames' are mediated by others. Indeed it would seem that if, for example, in education or psychology or sociology, statistical theory is used to enable data to be handled, and NOT used to model the phenomena, then statistics could be taught as part of the main course and so avoid students learning in abstract, unreal situations. Similarly this is necessary when assisting students with their particular study problems. Hence I came to focus my attention rather upon their becoming or being a student or scholar, than upon offering prescriptions which hold out the dubious promise of 'success'. Each student is unique and there is no guarantee that what 'works well' for one will do so for another. Furthermore, since the act of learning depends upon understanding, and upon understanding the realities of and in a particular situation, tips for students cannot provide a satisfactory programme for action.

6.7 THE STUDENTS' COMMENTS : WHAT THEY SAID

6.7.1 INTRODUCTION

As with the work previously described, there was the possibility that students would tell me, in their essays and during the interviews, that which they perceived I ought or wanted to know. But this would seem to deny the offer of help which was made. As before, the size of the sample and the similarities in the patterns of responses over the three years would seem to reduce this possibility. Nonetheless, I became aware as the investigation proceeded that whilst an individual's orientation to the world outside his own skin is a biological process, this guarantees neither the accuracy of his perceptions nor the veracity of his interpretations. Arne Trankell (1972), who has made a study of truthfulness in courts of law,

draws ...

draws attention to three conditions that commonly cause distortions: First, the selective character of perception, which limits the interpretations of the external signals to that which has foundation in the individual's earlier experience. Second, the logical completion mechanism, which often results in a false picture of a series of events, and third, attitudes, personal wishes and preference, which prejudice our interpretation of sense data. This procedure has, therefore, the disadvantage of being 'what the students say about themselves'. It would have been much more complete had it been possible to obtain concurrent information from each of their respective lecturers and preferably if it were possible to have selected a limited number of students, adopted the case study approach and spent a great deal of time with them. (cf. Becker's study and procedures).⁽⁸⁾ To overcome this I did spend one semester in two classes, observing and noting what students did in the learning situation, so what follows is essentially a backdrop against which to view the classroom observations to be described later.

A total of one thousand three hundred and forty-six students over three years described how they went about their work. With a population of this size it was inevitable that certain patterns of response would emerge, yet throughout the analysis of the responses the temptation to think in terms of an 'average' student offering a 'standard', 'fixed' pattern of response had to be avoided in the hope of capturing that which was essentially unique in the response. Describing the responses in terms of certain categories, as I shall do, does not imply the existence of a particular 'type' of student in an exclusive sense. Rather, the labels are those which emerged through the analysis and were not imposed prior to the analysis.

6.7.2 PROCEDURES ADOPTED:

Initially, those responses which exhibited clarity of thought and precision were separated from those which were muddled and unclear. The criteria was essentially a linguistic one but I argued that where students lack the ability to put forward a clear, well ordered argument, their chances of being successful in an examination system largely dependent on this ability would be impaired. It was a crude means of classification but it enabled me to provide some order on the plethora of essay and interview material. As 57% (N = 767) of the population gave me their names I was able to perform a Chi Square test of association using end of year examination success as the criteria. With 1 degree of freedom the resultant Chi Square, 3.946, $0.05 > P > 0.02$, confirmed my hypothesis that those students whose outlines

were ...

were clear and well structured did better in their end of year examinations at the 5% significance level than those whose outlines were muddled and lacking in clarity.

6.7.3 A REVIEW:

The common problems and difficulties faced by students were described in chapter five. Difficulties relating to their particular study habits and behaviour were emphasized and in their descriptions of how they studied some difficulty was experienced in distinguishing between their difficulties and the procedures they adopted. There existed a feeling that one was the cause or result of the other.

I have already suggested that my perceived role, as someone who might be able to offer help, could have encouraged this feeling of cause and effect.

In describing what students said about their study habits and behaviour I hope to avoid a repetition of the problems cited and concentrate on the processes of studying which emerged and the perceived reasons for doing as they do.

6.7.4 COMMON PATTERNS:

From evidence collected certain general patterns of study emerged. There were those students who as Pask (1976) has suggested, either work by what he called 'serialist' or 'holist' strategies. The former tend to operate in a logical step-by-step progression through their work, whilst holists 'skirt' around a topic viewing it from different angles. He has claimed that learners can be taught to understand their own strategy and to develop the ability to adopt the one appropriate to the learning situation. He has identified what he terms autonomous learners who can be either serialists or holists depending on the subject matter itself. There is, in Pask's work, an apparent value-judgement that holists are 'better' than serialists, but he recognises that on occasions serialism is a necessary strategy to adopt such as in passing examinations. In the Fort Hare population the 'serialists' by Pask's definition, far outnumbered the holists or autonomous learners. The tendency of 'serialists' to follow and learn a set of procedures or formulae is well expressed by the following science student. He said:

"In almost all the subjects I am doing there are formulae and procedures to be learnt. I try and read through each and try and solve the problem on that item or subsection. In Mathematics I learn the theorems and how they are derived."

On further enquiry he told me:

"Firstly I look through the explanations given and after reading the procedures given three or four times, I try to write down what I was reading about without referring to the textbook or lecture-notes. I do that until I can do it without referring. Then I apply the formulae to the problem given."

This student went on to explain how he worked in his other subject areas, but referred throughout to the difficulties he experienced in recalling information.

A similar distinction in students' learning patterns has been made by Hudson (1966), who identified students whom he called 'convergers' and 'divergers,' and Parlett (1970), who identified 'syllabus bound' and 'syllabus free' students. The former, those who are 'syllabus bound', stay close to the subject matter and timetable arrangements of a course, whilst 'syllabus free' students modify their subject matter and study arrangements to suit their learning.

The overall lecture-orientated teaching pattern at Fort Hare would, by definition, place these students in the 'syllabus bound' category and the following comments reflect this attitude.

"I am very aware that lecturers and textbook writers know a lot more than I do and so I rely on their judgement rather than on my own."

Arts male.

"I try to take down everything the lecturer tells me, but it is difficult keeping up with him."

Science male.

Similarly students seem to keep very close to the opinions and interpretations of the lecturers and recognised textbooks. Earlier, it was suggested that fear of being penalised for offering contrary opinions or interpretations could perhaps reinforce this tendency to 'play the examinations game'. The evidence from these interviews and essays suggest that rote learning practices, engrained and rewarded at school level, have inevitably been carried over to university. The extent to which they are reinforced here at Fort Hare was considered in chapter five.⁽⁹⁾

Eraut (1975) similarly describes 'subject focussed' and 'interest focussed'

students ...

students. Miller and Parlett (1974) looked at how students approached their final examinations and described what they call 'cue consciousness'. Some students appeared to be aware of 'cues' concerning forthcoming examinations and some actually sought out this information. These they called 'cue-seekers'. Others were oblivious to any clues, viewing examinations fatalistically and seeing their task as 'covering the whole syllabus'. They called these students 'cue deaf'. The former tended to gain higher final degree grades than the latter. A major study problem which emerged earlier was the difficulty students seemed to have in knowing what was required of them.

This seemed to influence the strategies adopted by the students.

"The problem is of knowing what is important and what is not, what is required for the test or examination. The result is that I try to memorize everything given to me."

Arts male.

On further investigation this student informed me that his strategy was not proving over successful.

"I thought my only solution was to memorize and because I did I think this is why I still found difficulty with my work."

The staff, in general, were very critical of the students' use of rote-learning strategies, and they too commented on the fact that the rote learners, the 'sylbs' (Parlett's syllabus bound students) or the 'serialists', were also 'textbook-lecture note, lecturer' bound. The following student, however, knew precisely what he was required to do to succeed:

"I memorize much against my will. I do so in order to pass tests and examinations, but not to know."

Science male.

A notable feature in the responses was the distinction some students drew between study requirements for their particular subjects. As I have already suggested, the evidence indicates that these requirements are frequently determined by the type of assessment used in a particular course and the 'DP' requirements. Tension is also created by the differing expectations of lecturers. As one student put it:

"I study differently in mathematics and zoology. In mathematics I work through similar examples more or less daily In zoology the type of question is a knowledge question involving a lot of memory ..."

Science male.

Similarly ...

Similarly one female student expressed herself as follows:

"Mathematics: when I study this subject I usually go over the problems solved by the lecturer in class, memorize all the necessary formulae, and most important is trying to find solutions for problems in the book.

Chemistry: Here the basic idea is to grasp the concept the lecturer is explaining. Often I read books in the library which will help me to understand these concepts clearly. Then I memorize the main points.

Zoology: Since this course involves a lot of learning, I study it daily by reading different chapters of my textbook. I memorize the characteristics of animals and learn to draw the different parts.

Physics: I commit the main points and formulae to memory. I try to solve the problems in the book and if I can't the lecturer provides them."

Science female.

Two common work methods emerged from the responses. A fairly clear difference in approach was discernable between students in the faculties of Arts, Law, Education and Theology on the one hand, and Science and Agriculture on the other. Students in the faculty of Economic Sciences tended to vacillate between the two. The social studies/humanities students⁽¹⁰⁾ tended to describe a method very similar to that proposed by Robinson (1961), the SQ - 3R method (Survey, Question, Read, Recite and Review). Often this involved a large amount of note making or summarizing in the Survey, Question and Read stages, with these summaries being committed to memory during the Recite stage. The evidence obtained earlier in the study on students' problems would suggest, however, that in cases where understanding was limited, large chunks of text would be learnt. This observation was supported by the staff, some of whom have found extensive plagiarism in essays and examination scripts. Science faculty students, and those following courses in the calculating or numerical disciplines generally spent their study time reworking examples done in the class, learning theorems and applying them to problems set.

Another feature which emerged from most of the replies was the frequency with which students say they discuss problems, interpretations, viewpoints, etc, with each other.

"... I ...

"... I get together with my friends (5 of us) and we work through our problems together. We seem to be able to help each other a lot."

Science male.

If this is so then consideration might be given to the use of senior students to act as tutors to particular friendship groups in the various subjects.

A general complaint aired by the staff is that students tend to memorize information for their tests and examinations. In the extracts quoted memorization appears to be a significant study strategy and this without necessarily understanding what was being studied. It appeared to be a 'defence' or coping strategy as well.

The question which emerges, however, is to what extent are such strategies, which students use, encouraged in the teaching-learning situation. The evidence seems to suggest that rote learning strategies have been rewarded at school level. To what extent is there a mismatch between these strategies and those required for success at university level? It is this 'situation' which I proceeded to explore in two courses.

6.7.5 CONCLUSION:

The grouping of students into such 'types' as 'serialists, holists or autonomous learners' (Pask) or as 'divergers' or 'convergers' (Hudson) or as 'syllabus bound' or 'syllabus free' students (Parlett) is not easy, if of any value in the current situation. Even the initial grouping based on clarity of thought and expression was essentially crude. The nature of learning and studying is, as I have argued, a very complex activity undertaken in different ways. What seems to be apparent in the present study is the lack of awareness on the part of students who say they are having difficulties or are unable to cope. This seems to relate to their clouded perception of the task in hand. There seems to be an initial inability to understand problems or arguments as a whole whereby permitting the selection of principle points or facts. The methods whereby students seem to come to know basic material seems to work counter to 'active learning' in which principles and processes are derived and understood. On the one hand the methods adopted seem to serve a functional view of knowledge and in this sense matches the students' perceptions of knowledge. (cf. chapter 4).

On the other hand there is a tension between what may be conceived as a 'good education' and an 'effective education'. The following interview was with a student who did very well in his first year examinations. It begins where I asked him why it is that first year students appear to rely so heavily on the lecturers' notes.

Interviewer: ...

Interviewer: Why do you think this is so?

Respondent:

"At school I was never taught a subject where I had to apply my own knowledge. A subject like history I had to give the stuff I read in books. It did not require my own common sense."

Interviewer: Do you think it would have been better if you hadn't been given any notes?

Respondent:

"No, I would have done badly. The core notes helped me to pass."

Interviewer: Don't you think it made you dependent on the core notes?

Respondent:

"But what would have happened if I had not got those core notes?"

Interviewer: You tell me!

Respondent:

"There were no books. If there are books you can be expected to read but even now in our course we don't have books in the library."

Interviewer: Did you take notes in lectures?

Respondent:

"In the lecture, the lecturer says ... 'this is important, please take notes.' If he didn't say that we did not take notes. So I didn't believe it was necessary to take notes."

Interviewer: Did you not think it would help you to take notes?

Respondent:

"I didn't know, I was imitating other students and it was as I had done in school also the lecturers told us when to take notes. (Long pause) Also you need to understand the language before you can take notes."

Interviewer: How long did it take you to learn how to use the library?

Respondent:

"Quite a long time but I am very curious so I went to the old students and he took me to the library and showed me."

Interviewer: How often did you use the library?

Respondent: ...

Respondent:

"Occasionally ... to look up things."

Interviewer: What is the best way of passing first year examinations?

Respondent:

"Learning the core notes ... but it also depends on the type of questions asked. Short question multiple choice questions can be answered by rote memory, but essay questions are more difficult. Also I didn't know what to expect and it was very difficult for me to select what was important to learn."

Interviewer: So how did you learn what to select?

Respondent:

"The first test helped me to decide. Also I began to learn that what the lecturer was emphasising in class was what he asked in tests."

(Long pause)

"Many lecturers are kind and they come to us after a test and tell us what they would have done to answer the question. They try to help us where we have gone wrong so when that question comes again I will know what to give him."

Interviewer: And will those be the things you see are important or what the lecturer feels or says is important?

Respondent:

"The core notes are very important and I elaborate ... I give it more detail."

Interviewer: But are these (the core notes) necessarily what you feel is important in the subject?

Respondent:

"I usually agree with the lecturer but sometimes I feel what I think is important is not regarded as important by the lecturer."

Interviewer: So what do you do?

Respondent:

"I stick to what he says. Not to is suicide."

Interviewer: So you would conform to what the lecturer thinks is important?

Respondent: ...

Respondent:

"Yes, absolutely."

Interviewer: So you are working out what the lecturer thinks is important?

Respondent:

"For me as a student I think if I know the emphasis of the lecturer it will help me to score good marks in his test because I know what he wants me to give him by where he lays his emphasis."

Interviewer: Are you not at risk of being indoctrinated?

Respondent:

"Students don't believe the lecturers are indoctrinating us. His viewpoint I regard as academic points."

(Long pause)

"I suppose we can be indoctrinated by good lecturers."

Interviewer: Why don't students work independently?

Respondent:

"We want to learn more from the lecturers. In my first year I think I am not expected to do much on my own. I believe I must be provided with materials."

Interviewer: Why?

Respondent:

"I believe I came empty to university."

Interviewer: Really?

Respondent:

"Now I don't think so but then I did. I think it depends on the course and the lecturers to have changed my mind."

Interviewer: How do you think people could have persuaded you that you weren't empty and that you could have worked on your own?

Respondent:

"If they asked me about things I knew, ... for example ... concerning the history of Africa But I got the feeling I knew nothing ... somehow the courses gave me the feeling I didn't know anything. This prevented me from working on my own."

Whilst for this student coming to work in the manner in which he did was reinforced by his perception of what was required of him, at the same time his belief in himself and his ability, his self-concept, was diminished. Lack of confidence in himself, the fear of appearing to be ignorant and assuming himself to be ignorant is what Manganyi (1979) has called 'psychological oppression'. Students, like this one, take no chances and so participate very guardedly. They want to be able to respond to a particular point of view which may be put forward by a lecturer but because of mistrust they are inhibited. The belief in 'being empty' is reinforced by the detailed knowledge required of the student, often in a totally unfamiliar subject area. In this sense too, students appear to be alienated from the content. The first year would seem to be essentially one in which the student 'cues in' to the various course demands, and learns to cope as successfully as possible.

There is evidence of students trying to work out in some form (diagrammatic and other) the logical sequence of elements, events or sections on which the understanding of material depends, but here the question of the level of English comprehension plays a significant part. Students appear to attempt to recall the points they have made in their notes but, as I shall later point out, frequently these notes are not a summary of the whole. Students make reference to such devices as mnemonic learning, working to a study timetable, taking regular pauses, but they also complain of their inability to concentrate effectively on what they are doing. The emphasis on learning facts would seem to reflect the students' conception of knowledge and what is perceived to be necessary to achieve high marks. Finally, if courses are something given to them, and this appears to be substantiated especially by the problems students appear to have in taking and making notes and their seeming dependence on the textbook and lecturer, then the emphasis on 'procedural' or 'perfunctory' learning (Northedge, 1976) which is evident in the responses would seem to form a particular and seemingly relevant learning frame for these students. ⁽¹¹⁾

6.8 HOW STUDENTS STUDY : EVIDENCE FROM OBSERVING TWO COURSES:

6.8.1 A BASIS FOR ENQUIRY

6.8.1.1 Introduction:

Although the students have presented outlines of their study methods with truthful intention it is impossible to find out entirely what they mean and do simply by studying their spoken and written statements. On evaluating

the evidence reported I was aware of the seeming 'smoothness' of what was said. I knew from personal experience that patterns of working are neither totally regular nor predictable. One responds to situations. The very nature of the evidence presented earlier in this chapter reflects part of the ecology of the students' study practices. Invitations from two colleagues⁽¹⁴⁾ to observe their courses provided the opportunity to take a closer look at the way students went about their work. What is reported here is concerned with an interpretation of what was observed in their classrooms. The courses differed markedly in certain respects, one being a semester course in the history of law and the other being an introductory practical course in physics. The practice of inviting a colleague to one's lectures is uncommon at Fort Hare and whilst I was keen to use the opportunity presented to illuminate the diversity of perception and consequent action found in the teaching situation, a number of problems had to be faced. Others emerged during the semester I spent in the classes.

6.8.1.2 Problems encountered:

The first issue concerned my presence as an observer. The object of my observation is a classroom, someone else's classroom, a place where there is an intricate network of interaction and this network can be disturbed by the fact that I am there. In general, methods of observation have tended to see the observer as someone outside the situation, a person who when given a list of directives could note down what was demanded. (cf. Balzer et al, 1973). In these methods there appears to have been no allowance made for the fact that some of the happenings only occurred because he was there. Eggleston et al (1975) suggest that this can be overcome. They state:

"It is important to ensure that observations are made of a situation similar to that which obtains in the observer's absence and not of an artefact caused by his presence."

I found differently. My presence obviously disturbed the intricate network of interaction and some happenings occurred perhaps only because I was there. One example:

Students in the law class approached me to request the lecturer on their behalf for roneoed notes. I explained that my presence in the class was solely as an observer, that the lecturer welcomed criticism and suggestions as evidenced by his sympathetic handling of their difficulties hitherto, and that they should approach him. A week passed during which students

approached ...

approached the lecturer for roneoed notes. He refused to give them detailed core notes but promised them some brief outlines. These were subsequently made available but obviously did not meet the students' perceived needs. They returned to me and asked me again to approach the lecturer. They tried to get me to agree with them that the note they had received was too sketchy. I again explained the nature of my work and my position as an observer. In the week preceding the end of course test I received the following note. It was anonymous and had been pushed under my door. It said: "You have failed us, Mr Alan Penny". It was signed, "Private Law I students." Thereafter I experienced great difficulties communicating with the students and obtaining feedback, something which had hitherto been given freely.

My presence represented something else to the students. They saw me perhaps as an 'ally', as someone who was there to 'check-up' on the lecturer. Either way, Eggleston's kind of adjuration, whilst easy to write, was clearly impossible to execute. I found as the SAFARI researchers under Stenhouse have that I had to accept the impossibility of achieving such a state and accept the consequences of my presence. As Morgan (1977) points out, when this compromise is recognised a position of strength obtains for one is no longer living with a contrived and constraining situation.

Although invited I felt that I was encroaching considerably on the lecturers' time and 'privacy'. Getting into their world was something that was happening all the time I was in their classes. This feeling was less acute with individual groups of students in the physics classes although by getting involved with individual groups I could not be aware of what was happening in the class as a whole. An advantage, however, was that I could probe their thinking and the direction it was leading them.

The second issue concerned whether or not to work from a detailed set of prescribed categories or directives. Delamont and Hamilton's (1976) view, that pre-ordinate designs (e.g. Flanders, 1970) do not acknowledge the possibility of differing interpretations on the part of those using the compiled categories to those intended, concurs with my own. When I enter someone else's classroom I take with me my own view of teaching. My observing is a reference point and what is observed is a reflection of where 'I am' at that time. It is how we interpret the facets of the situation according to our schema. Moreover, each moment is unique, it cannot happen again because at no time will I be there with the same balance of these traits in me and the students. Flanders' schema, in particular, was

unsuitable ...

unsuitable for a number of other reasons, too. First the suggested method of noting categorical behaviour every three seconds is unsuitable in a lecture situation or in the particular practical situation in physics where students were working from a practical manual. Second, it lacks flexibility and this is needed to capture the atmosphere of the classroom. I did not want to be inhibited by a prescribed category method of observation but through 'progressive focussing' (Parlett and Hamilton, 1972) to appreciate the complexity of the situation.

My record of the observations are in an ordered linear sequence, yet in reality one is observing a melange of events and thoughts. The situation is multi-faceted. For example, the lecturer may be affected by the size of the class, the pressure of tests or examinations, the syllabus, etc, and perhaps his own uncertainty and sense of inadequacy. The students, too, are pressured by the 'DP' system and their assumptions and expectations can lead to complex interpretations and actions. Each student is in his own individual 'space'.

So the observable is only the 'tip of the iceberg'. What is observable, however, is the framework the lecturer provides which he presumably feels will enhance student learning. His words, his actions are relative to a specific situation.

Whilst Nash's (1973) work using Kelly's (1955) personal construct theory seems a more authentic way of probing people's attitudes, in the present context where lecturers have large groups of students and do not know them by name, such a method is impossible. Hence it was decided to focus on questions which arose from the student and staff responses and during the observation (cf. chapter 2 part 2). Then an open-ended questionnaire (Appendices 6.2 and 6.3) was compiled by writing out that information I thought would be of value. It was also an attempt to pull together what had been observed. How informing this information would be depended on the students' probity and the closeness between their individual interpretation of the questions and mine. Although the questionnaires were only handed out at the end of the observation period they were compiled during the observation period. As such their development mirrored my progressive focussing and at the same time enabled me to approach the subsequent observation with greater sensitivity. As a result my perception of the various phenomena that emerged was more acute.

A third issue concerned the selectivity of my observations. In all the

areas ...

areas on which I focussed I could not ignore this. The act of focussing also started a process of introspection. I was observing the externals but I also searched in my experience for links that related to present perceptions. So another person observing the same situation may observe something different. A critic may argue that this would seem to justify using a system like Flanders Interaction Analysis Categories (F.I.A.C.), but I would suggest the same happens using F.I.A.C., for here too each observer interprets a teacher's or pupil's behaviour and endeavours to fit them into the categories as he interprets them.

The acknowledgement that any observation of phenomena is a function of the person observing is central to any research, but is of particular importance when the object of observation is human behaviour.

A final issue, and one implicit in the first problem considered, concerned the 'risks' involved. What were the lecturer's expectations of me, what were the students' expectations of me? How threatening was my presence to the two lecturers concerned and to the students? It is not easy to know but in reporting on the stance adopted by the staff in interacting with the students and with me perhaps some clues to this will emerge.

6.8.2 LEARNING EXPERIENCES:

The history of law course followed a formal lecture programme, the physics practical course was based entirely on laboratory work. Within both situations certain experiences were designed to allow for student learning and in many ways prescribed the nature of the interaction between the lecturer and his students. In considering this interaction two phenomena stood out:

- (i) The progressive development of student attitudes towards the learning experiences, and,
- (ii) the stance adopted by the staff in interacting with the students.

6.8.2.1 The development of student attitudes:

Both members of staff responsible for the courses under review, and the demonstrators in the physics department, describe a phenomenon where some students, perhaps the majority, appear progressively to change their attitude towards the course especially over later years. Though no direct information is available here from first year students over as short a period as one semester, subsequent remarks from students whom I have asked to 'look back', and from what the staff have experienced before, seem to suggest a

shift ...

shift in attitude from first to second to third year. Where students are taking only one course, especially in physics, a different conception of the course seems to exist. This phenomenon is observed elsewhere and is not unexpected. Three concepts have been developed in relation to this effect; the hidden curriculum, Snyder (1971), intellectual development, Perry (1968) and cue consciousness, Miller and Parlett (1974).

Snyder (1971) describes the gradual improvement, with some students, of the ability to perceive the 'hidden curriculum'. That is to say, the de-facto requirements for success on the course rather than the official or published requirements. Every course suffers from some disparity between what the students are told they must do and what they actually need to do in order to succeed. The two courses under review were no exception. Problems are likely to arise when the 'overt curriculum' and the 'hidden curriculum' are too far apart especially as this kind of disparity is likely to disadvantage some students more than others (cf. Miller and Parlett, 1974).

Perry (1968) has investigated the intellectual and ethical development of tertiary students. He found a progressive shift in the students' perception of the truth or actuality of his field of study as the student progressed through his course. This was essentially a move from holding a simple right-wrong view of knowledge and a naive concept of the field through a period of doubt or questioning to a state, not achieved by all individuals, of reformulating a philosophy and establishing a personal commitment.

Miller and Parlett (1974) have proposed that students may be characterised in terms of their 'cue consciousness'.⁽¹⁵⁾ Some students are well attuned to the 'cues' provided by the educational milieu and are regarded as 'cue-seeking'. These students will be easily able to perceive the 'hidden curriculum' and they may be likely to reach an insight into their field of study. Whilst Miller and Parlett expect this to be that level of insight understood by Perry (1968) for obvious reasons this may not necessarily be so.⁽¹⁶⁾ The 'cue deaf', on the other hand, are unable to use the subtle information, from staff or other sources, about their curriculum. These students may find it difficult to predict when and what to study and are generally unable to manage the impression of themselves which they convey to the staff. This poor 'impression management' may give them the appearance of being less able than the cue seekers, even though they may be quite intelligent and hard working.

There ...

There are two important implications for this study. First, any particular student will probably be less 'aware' or 'developed' early on in the course than he will be later. This was the impression gained during observations early in the semester and later on, and is one which is confirmed by the staff responsible for the courses. But this also begs the question of how to facilitate the process. The second implication is that students will be at different stages of awareness and if there is any substance in the work reviewed then staff need to be aware of this as their work is planned. To what extent, therefore, is there a match or mismatch between the lecturers' and students' expectations?

These two questions, how learning is facilitated and whether or not a mismatch exists were focussed upon during the classroom observations.

6.8.2.2 The academic stance of the staff:

There were a number of formal and informal ways in which the students interacted with staff in both courses. Whilst a formal lecture situation existed in the law course, the lecturer responsible maintained what he termed an 'open door philosophy'. Students were free to visit him privately whenever he was not lecturing. That certain students took advantage of this opportunity reflects the attitudes of the students and the staff member. The other lecturer and demonstrators by virtue of the nature of the practical course were more accessible to students. But, as is suggested, the outcome of these interactions depended on both the attitudes of staff and students. Four aspects of the stance or attitude of individual staff were identified during observations:

6.8.2.2.1 Student motivation:

The more general aspects of student commitment or lack thereof have been considered in chapter five. Whilst these are present in the classrooms observed, I was particularly concerned to see how students were motivated. In both instances it was common for the staff to remark that fear is the main motivating force of the students. It was held that students would do very little unless they were forced to and especially without the threat of marks, examinations and the D.P.⁽¹⁷⁾

Yet less threatening and more positive forms of motivation existed too. These included responding sympathetically to student difficulties, encouraging students to work on their own, and, in physics, to experiment. At the same time in physics, however, an experiment once completed was marked and this reinforced in the students' minds the need to obtain the right

answer. I put this seeming contradiction to the lecturer in charge and the demonstrators. They accepted it but maintained that the main aim of the series of practicals was to familiarize them with laboratory procedures in general and to encourage students to realise the necessity of accurate observation. Accuracy would lead to correct solutions and these were rewarded with high marks. In the law course contributions made during lectures and which reflected evidence of wider reading were received sympathetically but in general the desire to do what was perceived to be necessary to achieve high test marks influenced any involvement.

Students were generally unaware of this debate and more especially the positive forms of motivation. During the classroom observations I tried to see what extrinsic and intrinsic factors motivated the students.

6.8.2.2.2 The value of assessment:

It has already been pointed out that staff saw assessment as a powerful motivating force. The consequences of this; namely, the nature of the pressure on the students to do well, the nature of the pressure on the staff to comply with the students' expectations and demands, the manner in which the students coped with the course work and the manner in which they coped with the pressure; were never fully appreciated by the respective staff members at the time. On reflection and especially in discussion these issues were explored. Nonetheless the institutional requirements were usually offered as an additional reason for assessment. Lecturers did accept, however, that for assessment to be 'educative' it should be used to influence students' learning and thinking. In the law class this was seen to be totally impractical with one lecturer to one hundred and eighty six students, and with a faculty requirement of six tests annually to make up the students' year marks.

In the physics class where the responsible lecturer was assisted by three demonstrators the marking load whilst numerically easier was nonetheless heavy in that the practical books were marked each week before the next practical.

Whilst it is easy to be critical of these colleagues who make use of assessment procedures which appear rather like extortion, how in fact did the students respond? This became a further point of focus during the observations.

6.8.2.2.3 Rapport in the teaching-learning situation:

The evidence presented in chapter five reflected the problems students and staff experienced in establishing a rapport between each other, their work and the institution. Staff complained about passive students, rote learning and the seeming inertia and lack of commitment displayed by the students. Students, on the other hand, expressed their uncertainty, fear and reluctance to ask questions, to consult staff and to become involved. Their responses reflected their intellectual uncertainty and general lack of self-confidence and both staff and students believe that this psychological barrier constitutes a serious problem for both teaching and learning. Furthermore, it was argued that the 'them and us' distinction reflected the social norms in which the teaching-learning is embedded.

Whilst this barrier is unlikely to disappear, the degree to which it is perceived must affect the academic ethos of the institution. To what extent is it the norm not to interrupt the lecturer, not to reveal intellectual confusion and not to seek help from lecturers? At the same time, to what extent is this barrier reinforced, albeit one might hope unwittingly, by staff attitudes and practice. These issues became an additional focus during the observations.

6.8.2.2.4 Identity:

Closely linked with the question of rapport in the teaching-learning situation was that concerning identity and commitment. The evidence from the student responses in chapters four and five reflects a dissociation from an institution which they come to not from choice but to obtain a degree. Within the teaching-learning situation students find themselves in a conflict situation where they recognise the value of identifying with the lecturer and his values yet reject him for what he represents in the context of the institution. But the inevitable stratification and differences in roles between staff and students per se gives rise to some kind of division, too. There are differences in power especially concerning knowledge, expertise and in the awarding of marks. The anxieties this creates especially when the availability is seen or believed to be denied accounts for the feelings of fear earlier expressed by the students.

What, therefore, was the nature of the contract between the students and lecturers in the situations observed?

6.8.3 WHAT IS THE NATURE OF THE CONTRACT BETWEEN THE STUDENTS AND THE STAFF?:

Three major questions emerge from the phenomena observed:

- 1) The Instructional Situation:
 - a) How did the lecturer define the situation?
 - b) How, if at all, was this definition maintained?
- 2) How did the students respond?
- 3) How are these students motivated?

THE LAW CLASS:

The history of law course was entirely lecture based. Students attended three, forty minute lectures each week during which the lecturer transmitted content from his personal notes.

6.8.3.1 The Instructional Situation: Evidence of a mismatch in expectations:

6.8.3.1.1 How did the lecturer define the situation?

In the first lecture the students were told that the course would provide an outline only of the major sources of South African law and that they would need to consult the references given during the lecture, and especially the law reports. Explanation was given on how to find cases in the law reports and on what to look for in them and in the other references cited. By lecturing, a particular definition of the situation was defined and although the lecturer did not specifically define what constituted the knowledge required the fact that he selected particular writers did indicate his possession of and access to that knowledge. Yet by sharing with the students his expectations concerning how they should go about their work, that they should note key points in his lectures and consult references for details, he was encouraging them to work individually. During the first week this definition was reiterated a number of times. I therefore asked the students:

"What does Mr J. expect you to do during his lecture periods and afterwards?"

I also asked them:

"Where are you going to get your notes from for Private Law I?"

The following reply was common, 93% responding in similar vein:

"Absorb and at the same time write what he says is important. Thereafter we are expected to study what we have at our disposal with the aid of prescribed books, law reports etc. in the library."

It was clear from the responses to these two questions that the students recognised the lecturer's definition of the situation, and what they needed to know and do. They had to supplement whatever was noted during lectures with details from the various references.

6.8.3.1.2 How, if at all, was this definition maintained?

By the end of the course the lecturer still maintained that his intention was that the students should listen, ask questions, take notes and then refer to the references cited. Equally consistent were the students who confirmed these expectations in their responses in the end of course questionnaire (Appendix 6.2). My concern, however, was whether or not the lecture structure had allowed for this. It is not my intention to describe in detail the procedures followed in each lecture, rather it is to describe how the lecturer concerned attempted to maintain his definition of the situation through the teaching strategies followed.

The entire course was dominated by the lecturer's talk, interspersed with the occasional questions to and from the students.

Each lecture began with a list of relevant references and a brief review of the preceding lecture. Thereafter the historical outline of the major sources of South African law was developed interspersed with references to recent and relevant cases. Yet interaction did take place, communication was not just one-way.

In the first place questions were occasionally asked of the class but what seemed significant was the fact that these tended to be aimed at recalling work previously covered. Student questioning of the lecturer was limited too, and whilst a strict count of the number of questions was not kept, the time at which the first query came was. Over the eight week course this happened usually after twenty minutes. After lectures I asked the student/s who had raised questions why they had interrupted when they had. Without exception they said it was because they were confused.

Interviewer: "Confused by what?"

Respondent:

"I can't follow what he is saying."

Interviewer: "What do you mean, you can't follow what he is saying?"

Respondent:

Respondent:

"One minute he is talking about the East and West Empire, then he is talking about the Roman Empire, then he is talking about Justinian's code. I can't follow where he is going."

This extract raised a second issue. The lecturer in defining the content or knowledge situation as an outline was concerned to show the unity of the law and the relevance of the past to the present. A chronological outline was adopted and the lecturer began his course with frequent references to the historical events in which the law as it evolved was embedded. By doing so, however, he presupposed some knowledge of the historical background. This was his frame of reference but it was not shared by the students. I raised this issue with him and he again stressed the importance of their knowing of certain writers only; he did not want students to have to learn the background history at all. He agreed, however, that such a background knowledge would enable the students to see the writers in context and the course outline followed appeared to be based on such an assumption.

This discussion brought about some changes for a map of ancient Europe was brought into the next two lectures and a brief historical outline of the rise and fall of the Roman Empire was given. Nonetheless, he continued to reiterate his original aims. Conversations with students following these lectures indicated their satisfaction, however. They were able to see the relevance.

The students were trying to share the lecturer's connections, but I was also questioning the effectiveness of his teaching. The blackboard notes lacked a coherent pattern, his exposition, whilst clearly enunciated, seemed to lack a framework and as the course proceeded, so student restlessness increased. They demanded typed core-notes. These were refused. At times the lecturer responded by offering to dictate, which he did, at other times he referred them to their textbook for details. At no time did he provide a timeline or did a concise pattern or order emerge in his work. It seemed to be unstructured, and increasingly the detail and cross-referencing which had characterised the early stages of the course disappeared and the lectures became a chronology of the names of key writers with a brief resumé of their work. In private he expressed the need for more time. He was cutting corners. There appeared to be tension in the department too.

... "either give me more time to cover the work in detail or drop it" was his plea. I was aware of the tension too, for the students were making

demands of me. (cf. page 277). The lecturer was also aware of my presence. Was he fearful I would be critical? Yet each time the lecturer managed to provide some framework, activity began, students began to take notes, and the tension seemed to ease.

A third issue concerned his frequent instruction to them to refer to particular references. Without exception students complained about the shortage of reference material in the library. From their responses they experienced obvious difficulties in obtaining the books referred to. Although the reference books had been placed on reserve in the library there was tremendous pressure on them. One reference book to one hundred and eighty-six students inevitably creates such problems.

Finally, from the very first lecture students asked: "What must I learn?" In responding to these questions the lecturer was reinforcing his own definition of the situation. What was apparent to me, however, was the seeming acceptance by the students that the lecturer was the possessor and dispenser of knowledge. He was accorded the control and power and it was from him they would obtain the requisite knowledge. There was no suggestion from the students' point of view of a 'shared learning experience' and this reflects the 'coming empty to university' syndrome expressed earlier in this chapter. The issues of assessment and the implied control were always apparent.

The following student who headed his reply, 'Constructive Criticisms', sums up the difficulties experienced by the majority of the students I spoke to and who responded to the questionnaire.

"Mr J. seems to be a bit poor in presentation of his lectures. It is very difficult to take down notes of what he teaches in most cases. Facts are always jumbled up and I find it difficult to correlate them. I think he doesn't deal with facts in their chronological order. He depends too much on reading his hand-written notes more than the actual teaching and clarification of vital points - though he sometimes clarifies.

Mr J. prescribed 'Boberg' but none of his notes are obtainable from that textbook. He refers us to the library for his texts only to find one book for over 150 students. This is our great grievance.

We do not propose to be spoonfed with notes all the time, but notes must be given here and there, from time to time, for the aforesaid reasons. The results of tests will definitely disclose that a large number of students do not understand what he teaches us."

Whereas ...

Whereas I have suggested that perhaps the pressure of time and the seeming confusion exhibited by the students could account for the progressive simplification of the information that was transmitted, the degree to which the lecturer himself was unwilling to accept the role being prescribed by the students, that of a 'knowledge purveyor', could itself have encouraged him to force them to rely more heavily on the reference works. I am not suggesting this as an excuse for the seeming lack of structure and clarity in the lectures, but the lecturer's consistent refusal to give them typed notes and his insistence on the need for students to work on their own, could also perhaps explain the direction the course took. The pressure from students and especially their response to the situation was equally important. The lecturer was in a constant process of redefinition and reaffirmation.

6.8.3.2 How did the students respond?

From the very first lecture, it was apparent that the students wanted notes to be given to them, and the pressure on the lecturer and subsequently on me to oblige was very great.

The reliance on typed core-notes seemed widespread. All students interviewed and all those who returned the end of course questionnaire indicated that other lecturers provided them with typed notes. As the issue of typed core-notes was crucial and appeared to be the focus of student comment I asked students the following questions:

- What are you expected to do with any core-notes give to you?
- What do you then do during your lectures?
- Why do you think Mr J. has decided not to give you core-notes?
- Why do you feel you need core-notes?

The majority of the respondents (96%) saw core-notes as a study guide, something to be used in conjunction with their textbooks and other library references. Private notes were seen as a supplement to the core-notes and not vice versa. They are also seen as important points to be learnt and are especially useful because the language is simpler than that found in the textbooks and law reports. They provided a structure and for just over 60% of the respondents these notes are all that they use in preparing for tests and examinations. Three students, all of whom did well in Mr J.'s end of course test, complained bitterly of the fact that in other courses students who rote learnt the core-notes did better than they did. And yet they did not, according to them, really understand the work. I asked them whether or

not these students did as well in Mr J.'s test. They felt they did not do as poorly as they should have. One continued:

Student:

"Private Law I is the only course I take where core-notes are not handed out and it is the only course I really understand."

Interviewer: "Why is it the only course you really understand?"

Student:

"In my other courses I get nothing out of it I memorize those courses and then I forget. I can't even explain it to other students after the test. We students call this 'flushing'."

Interviewer: "So why do you memorize the material a lecturer gives you?"

Student:

"This is the system of Fort Hare. You come here with enthusiasm only to be discouraged by the marks you get. You feel worried about your marks and you start consulting other students and then they tell you to memorize to pass the course. Most students who rote learn get high marks, so there is security in rote learning ...

(Pause)

They (the students) are quite aware that this is not the right type of learning, because it doesn't lead to understanding, but for passing you must memorize. I don't trust the lecturer who tells me not to memorize."

The value of handouts or supplementary material has been the subject of a number of studies (cf. Hartley and Davies, 1978 and Collingwood and Hughes, 1978). Whilst the evidence seems to suggest that such a procedure makes little difference to recall scores, a recent study by Hartley (1976) indicated that structured handouts can lead to improved recall scores. He warns of the need to take into account other factors such as the relevance of the material and the effects of the instructional situation, however. The evidence concerning student disillusion after tests, where large sections of work had been memorised and recorded, but where the questions were not answered and so resulted in poor results, would suggest that where more than recall is expected, core-notes can induce a false sense of security. The complaints of the three students cited above is that too frequently all that is required is rote learning and recall of information.

From the responses it would appear that core-notes are used in two ways. First, as a guide and hence an aid in lectures where they listen to lecturers and add their own notes to them, or second, as a text in which they mark the important points as the lecturer reads through them.

Two thirds of the respondents believed that Mr J.'s reasons for not handing out core-notes were because he required them to make their own and to learn to work on their own. But three problems were raised in this connection. First, such intentions presuppose a clear understanding by the students of the lecture and reference material. At best this would involve the lecturer in providing a fairly clear lecture structure and sufficient cues, verbal and written, to the students. It was interesting to note that whenever Mr J. wrote items on the black board the majority of the class recorded them. One senior lecturer in the faculty of Arts described this widespread phenomenon in Pavlovian terms and it supports the findings of Maddox and Hoole (1975) and is summarised by Gage and Berliner (1975). The confusion experienced by many of the class would also seem to point to the general lack of 'verbal signposts' during the lecture, although my field notes are punctuated with such remarks as ... "it is important to remember that ..." or "I want to stress ...". This suggests problems of comprehension. From discussions with the class it appeared that over half seemed unable to detect redundancy in the lecture. This was confirmed in an exercise carried out after the course. The class was invited to attend a seminar on note-making and note-taking. The 78% attendance indicated their own concern with these skills. The seminar began with Mr J. delivering a mini-lecture lasting fifteen to twenty minutes. Students were instructed to take notes. After the lecture group discussions were held to analyse the content of the lecture and to decide on the key points. An overview of the students' notes revealed that fifty-three per cent had included in their notes items of redundancy which the lecturer had deliberately built into his lecture. Gibbs (1977) found a similar inability to discriminate on the part of students on a 'How to Study' course. This was the second problem raised, that students have difficulty making and taking notes. A third 'extraneous' problem concerned the shortage of resources in the library.

That core-notes were not provided was seen as operating to their disadvantage. Mr J. was being unreasonable in spite of the value perceived in his encouraging them to work on their own.

Mr J. consistently refused to hand out core-notes. He continued to emphasise the need to take notes in his lectures and to supplement these from the prescribed references. How did the students cope? The pressure to persuade Mr J. to provide notes has already been commented upon. It continued unabated throughout the semester. Whilst the majority of the class knew what was expected of them I was keen to see how many in fact did as was suggested. It was difficult to see exactly what students scribbled down during lectures, but they were willing to let me see their note books. I also sat in various places in the lecture room during the semester and was able to watch what students did during lectures. A number of features stood out. There were those students who tried to copy verbatim what was being said, especially, they told me, when they felt lost or confused.⁽¹⁸⁾ These represented a minority, however. Others 'gave up' entirely when they lost the thread of the lecture and resorted to doodling or even to putting their heads down on the table in front of them. By far the largest group persisted and copied down anything written on the blackboard. These also noted down the names of the various writers under discussion and then filled in the details from their references after the lecture. My overall impression, however, was of how few students took notes regularly, but from a review of their notebooks 62% of them had supplemented their lecture notes from some source or other. It would seem from what was said to me that where lecturers expect them to follow the core-notes, listening was an appropriate strategy. Such a strategy was inappropriate in Mr J.'s course, however.

Another strategy was to borrow notes from previous groups of students. This was not entirely satisfactory, however, as Mr J. was teaching the course for the first time, and it was obvious from student references to Mr R.'s notes of the previous year, that Mr J.'s emphasis differed. More than one student had obtained a copy of the University of South Africa's lecture notes on the subject. One expressed his opinion as follows:

"I see no relevance in what Mr J. is doing. It is even difficult for me to follow him up. When one consults the book Hahlo and Kahn, it becomes worse because it discusses in a very broad manner. One other thing, I don't know whether Mr J. is expecting us to memorize all those jurists appearing in the book. I am not yet at home with what Private Law is concerned with, but when one reads these study guides of UNISA, really Mr J. is out."⁽¹⁹⁾

6.8.3.3 How are these students motivated in this instructional situation:
What must I learn?

The all-pervading influence of the semester tests and the D.P. system entered nearly every discussion I had with individual students and determined the 'difficulties' experienced in the course. At the end of the lecture course Mr J. set aside half a period for questions about the work. As the following outline shows, the class seized the opportunity to ask about the forthcoming test. It also reflects upon the ethos of the class and upon what students see as of primary importance.

1st Student:

"When you study this history are we supposed to know all about these writers and what they wrote?"

Lecturer:

"Only those selected because of their importance in current legal cases".

2nd Student:

"When answering a question on X, what detail is required?"

Lecturer:

*"I am only interested in how a particular writer influences our law ...
 ... what he wrote and on what topic."*

3rd Student:

"Please give us an example of a question for the forthcoming test."

Lecturer:

"Tell me the influence of Dickens on present day literature."

4th Student:

"Are we getting essays only or essays and ballard questions?"

Lecturer:

*"Essays and paragraphs ... Judge by the amount of work required ...
 ... I am especially interested in the classical and post-classical
 period writers."*

5th Student:

"I can't memorize them all"

Lecturer: ...

Lecturer:

"You are not expected to ... later I shall refer to these writers in the Law of Persons. If you want to work with the law you must know the tools with which he works. This is important in what we do. Hence I have selected the most quoted jurists."

6th Student:

"Up to where do we need to know?"

Lecturer:

"Up to the Corpus Juris ... just those writers I have mentioned".

7th Student:

"The book by Nicholas is not in the library. Will it prejudice us?"

Lecturer:

"No, refer to Kunkel."

8th Student:

"Are there any options in the questions to be answered?"

Lecturer:

"No ... the way I did examinations ..." (Here he went on to tell them about his own examination requirements, and implied how much easier it was for them).

9th Student: Taking up a reference book he asked:

"What pages in this book have to be learnt? I have a lot of tests next week so what are you going to lay emphasis on?"

Lecturer:

"I haven't prescribed that book. You must refer to those I have. They are easier to follow ... I spent a long time on legal concepts and an outline of the writers was given. This is definitely in the test."

10th Student:

"If one uses one source only in our answers will this prejudice us?"

Lecturer:

"The more detailed the knowledge the better."

10th Student (again):

"I prefer Austen's style."

Lecturer:

"I only want a general grasp of the material."

11th Student (amidst much laughter):

"I have lost all my notes, can you give me some."

Lecturer:

*"Why do you come only now a couple of days before the test.
Read what I told you in my bibliography."*

12th Student:

"Please give me the relevant page numbers out of Hahlo and Kahn?"

Lecturer:

"Use the index." (He proceeded to demonstrate how).

13th Student:

"What are the sources of law?"

Lecturer:

"What do you take into court with you?"

It is easy, perhaps, to pass the remark 'typical students, they always leave their preparation to the last minute and then expect the lecturer to help them out', but this would ignore the nature of the interaction which this extract reveals.

A further incentive concerned the relevance students perceived in what they were doing. A large number of students (71%) said they could see no relevance in what they were doing and admitted that they hoped what they were doing would be sufficient for them to pass their tests. As such they exhibited the tendency, previously observed, to view the course as something 'out there', as something to be 'given to them'. But the issue of relevance went deeper than this and concerned their lay notions of law and a lawyer's work. They said they were unable to see the relevance of the course to 'real' law. Although the lecturer made reference to cases which had been decided on the basis of the writings of classical writers, no connection in the students' thinking seemed to be made. Yet at the same time whenever a case was

mentioned ...

mentioned pens were immediately raised and notes taken.

The student responses revealed some interesting features of this 'lay-imagery'. There was a strong emphasis on 'doing' (Parsons has called this 'instrumental activism') backed up by a need to be involved and the need for a close supportive relationship. It would seem that this 'lay-image' tells them that being a lawyer consists of doing things and performing skills in which they require training. Disillusionment arises when they are required to know in detail a mass of seemingly unrelated details. At this level the students are following precepts which they have not yet modified. The precise action a precept prescribes can only be learnt by practice yet at this stage in their education they are not in a position to do this. Hence the lecturer's reference to their need to know the tools with which a lawyer works. In discussing this dilemma with the lecturer and especially after noting how student interest was aroused when specific cases were mentioned we agreed that perhaps all course work should be rooted in professional life. The need is to create as Freire (1972) suggests ...

"... conditions under which knowledge at the level of the doxa is superseded by true knowledge at the level of the logos."

6.8.4 WHAT IS THE NATURE OF THE CONTRACT BETWEEN THE STUDENTS AND THE STAFF: THE PHYSICS INTRODUCTORY PRACTICAL COURSE:

This first semester course comprised a series of nine experiments. Attendance was compulsory at each three hour session which was conducted by the lecturer (Mr X) responsible for first year work and four demonstrators in the first year laboratories. Because there were eight different experiments being performed in each session I decided to spend one complete session in each experiment group⁽²⁰⁾ over the nine weeks. There were fifty-four students in the class.⁽²¹⁾

Prior to the first practical students had purchased a prescribed practical book in which they were to write up their various experiments. They were told that these books were to be handed in for marking each week and that each write-up would be given a mark out of ten. A practical manual was issued and a group list was put up informing students which practical they were to perform and on which day. Instructions concerning the course requirements and general safety aspects on working in a laboratory were given. Students were to work in pairs on three of the experiments but where apparatus was limited groups of up to six students were found. As with the law class observation,

it is not my intention to describe in detail the procedures followed in each practical. Rather it is to describe the nature of the learning situation and how it was defined.

6.8.4.1 The Instructional Situation:

6.8.4.1.1 How did the lecturer define the situation?

The lecturer responsible for the practical course had had considerable experience in teaching physics in black rural schools and was aware of the level of experience brought by the students to the practicals. He was under no illusion that for the majority this was their first experience of working in a laboratory. Their pre-university science experience, he believed, encouraged students to do things they are told to do and which they assume must be important, but which would appear, at times, to make little sense to them. His assertions were confirmed by the students themselves. I asked them what previous experience they had had in working in a laboratory and in doing some of the things expected of them in their practicals. Apart from a minority (less than 5%) who had had the opportunity to observe their school teachers performing the occasional experiment, none had actually performed any experiment in a laboratory. The following reply was typical:

"I can't say I have had any previous experience of what is expected of me here, as in the high schools we are not fully introduced to this because of the largeness of the classes and scarcity of apparatus, the shortage of teachers specialised in this field, and the absence of laboratories. So things were done theoretically."

Whilst all admitted to having, for example, observed physical phenomena, kicked and thrown balls or stones, watched lightning, and, where available, fiddled with electric appliances, none saw the 'connection' with the 'theory' they had studied at school. In addition, the students experienced difficulty handling the equipment. In one instance observed, where a group was told to make sure that the glassware was firmly held in the retort stand, the student, in making sure that this was so, tightened the clamps too much and shattered the glassware. In another, students experienced difficulty handling a micrometer. What the staff saw as simple manipulative skills, were major difficulties for some of these students. As they, the students, explained to me, it was the first time they had handled such equipment.

Given these problems, Mr X felt he could not hope to bring the students to the level of sophistication he should wish for in the limited space of nine weeks. Nevertheless, his primary aim in this introductory course was to

induct the students into a way of working and, hopefully, into a way of thinking, so that the remainder of the year could be profitably spent involving students in 'finding things out for themselves'. His aims for this course were essentially limited but his emphasis was on ways of thinking and doing rather than on the retention of facts.

6.8.4.1.2 How, if at all, was this definition maintained?

Four features stood out. First a prescribed set of activities were presented to the students on the assumption that once having been accomplished they would already be beginning to think scientifically. The practical manual provided the student with a statement of the problem to be investigated, the apparatus to be used, the method or procedures to be followed and an example of the readings likely to be obtained. These were to be tabulated as prescribed. A paragraph on the underlying 'theory' was also provided. Finally students were asked to plot their results on a graph.

In effect, therefore, the students were being provided with a 'recipe' which they were required to follow.

Second, every session commenced with an outline of these procedures by one of the demonstrators or Mr X. It was expected that students had previously read through the relevant section of the practical manual before the practical, but as more than one pointed out to me:

"Seeing Mr X goes through the experiment outline before we start I think it is a waste of time trying to puzzle out what I will have to do beforehand."

An interesting corollary to this was the following remark:

"I cannot visualise what I am going to do or what it means before I actually do the experiment. Only then do the readings mean anything."

So whilst Mr X and the demonstrators were making sure that the students were to be inducted into a particular set of procedures certain consequences began to reveal themselves early on in the observations.

Thirdly the efficacy of the procedures followed was rewarded by obtaining the 'right answers' and as a result high marks.

Finally the students arrived at their benches to find all the necessary apparatus and material available and with the task before them clearly defined. They proceeded to try to perform a 'reliable' reproduction of the experiment but the problem was not 'theirs' nor were the means and the procedures defined to 'solve' it.

These were the aims and the procedures planned to meet them, but the reality lacked this smoothness. The students, in responding, did so in their own idiosyncratic way.

6.8.4.2 How did the students respond?

6.8.4.2.1 Negotiating with the staff:

As was apparent in the law class, the students seemed to accept that the lecturer was the possessor and dispenser of knowledge. In this instance, however, where procedures were being emphasised, albeit in the hope that processes would be understood, and where the learning experiences were managed in such a way as to produce an outcome in line with the 'correct' answer, the status of the facts was "seen to lie in the procedures or method adopted rather than necessarily in themselves or their meaning. It was important to obtain answers which were 'right' through these procedures and the staff were seen to have access to and control of this knowledge, as well as the power to reward those complying.

Whilst Mr X himself was reluctant to allow himself to be drawn into a situation which reflected this, he nonetheless accepted the possible influences of the practical manual. His stock response to a request such as, 'is this right?', was inevitably

"Where did you get that reading ... check it ... see if you get a similar one ... etc."

But his insistence that the students

"... should learn to think about why a certain thing is so instead of trying to remember that it is so",

whilst subscribed to by the demonstrators when we talked about it, was not practised by them in the experimental situation.

On the one hand there was pressure from the students who expected Mr X and the demonstrators to help them when they were confronted with a problem.

They said as much:

"Although I am finding the problems set fairly difficult our demonstrators always help us when we find any problems with the work."

A refusal to help in the way expected led to harsh criticism of the staff.

As one student said:

"I would like to see all demonstrators checked out. They frustrate us wholeheartedly by not telling us what to do."

On the other, there was the response of the staff. Whilst Mr X had no objection to helping students, it was the difference in the manner in which this was done and the consequent effects on the students' actions, which were significant. The demonstrators tended throughout to 'do the work' for the students and where groups were struggling a dependence on them was induced. This appeared to occur quite unwittingly for it was denied when I asked how they interpreted their action. Students seemed increasingly reluctant to take the initiative and seemed to spend a lot of time attracting the demonstrators' attention.

The following example, which had uncomfortable consequences for a demonstrator, illustrates this point. Two students, who said they were enjoying their work and who seemed enthusiastic and keen to try things for themselves, found the flask they were heating was doing so too slowly. They realised that they needed to lower the retort stand to bring the flask nearer the bunsen burner. They removed the flask and placed it on an asbestos sheet, and using tongs lifted off the gauze flame-spreader, which was very hot, and dropped it into the basin. Thereafter they lowered the flask and had only just replaced the tripod when the demonstrator 'swooped' in. The interchange went as follows:

Demonstrator:

"What are you doing ... Why are you heating that flask with a naked flame?"

Students:

"We ... er ... er ..."

Demonstrator:

"You know you must place a wire gauze on top of the tripod."

Students:

"Yes ... we ... er ..."

Demonstrator: (looking about the table)

"Where is the wire gauze ... ah ... there it is!"

With that he grabbed hold of the still hot gauze pad. I am not sure whether his shout of pain was louder than the students' laughter. Wryly they remarked:

"He won't do that again!"

He certainly took more care later, but he continued to 'instruct' the students. The demonstrators and I discussed this event and one, in particular, suggested

they ...

they should perhaps attempt to concentrate on principles and processes. But invariably when pressured by the students they complied. The invitation to ...

"... just tell me the method and what readings to take"

was seldom resisted.

Yet they could not satisfy all the students. Asked what general difficulties they were experiencing, a few students (27%) made replies similar to the following one:

"Most demonstrators tend to demonstrate how the experiment should be performed (i.e. method) and do not concentrate on the principles governing that experiment."

The pressures on the demonstrators, their responses and those of the students are further illustrated in the following examples.

I was observing a group of three students measuring the focal length of a convex lens by plane mirror. The manual provided an outline of the apparatus to be used, a diagram of what they were to 'see', the method to be followed and an example of the readings likely to be obtained. A paragraph on the principle of the reversibility of light was given. The demonstrator began by explaining this principle and then outlined the procedures to be followed, whilst performing them. The students listened. One checked in his practical manual,

Student:

"What is the problem?"

Demonstrator:

"Light from the focal point, after leaving the lens, strikes the plane mirror normally as parallel rays and is therefore reflected back along its original path. An image is therefore formed here"
(pointing to a spot).

Student:

"... focal point?"

Demonstrator:

"Yes, look here."

Student:

"I can't see." (Looked up).

Demonstrator: ...

Demonstrator:

"No, you must look until you can see." (Much laughter).

Student:

"You are confusing me."

Demonstrator:

"Look, put your head here, close your left eye ..."

(Proceeded to give instructions).

"Now what can you see?"

Student:

"A light ..."

Demonstrator:

"Look for the pin ... line it up with the image ... etc."

(Here followed a series of instructions).

Student:

"What readings must I take?"

And so it proceeded with the students coaxing the demonstrator into doing the practical for them. But this interchange highlights two further issues. The first concerns 'seeing', and 'knowing' what it is that one is 'seeing'. The second concerns the demonstrators' use of terms such as focal point and image. Was this student perhaps seeing something, but not seeing it as something? I asked the student who had had the difficulties whether or not he could see anything other than the light now.

Student:

"Yes, the pin."

Interviewer: "What does it look like?"

Student:

"It is this thing (pointing to the 'real' pin) ... *inverted*."

Interviewer: "Why did you have difficulty seeing it?"

Student:

"I didn't know what I was supposed to see."

This student was happier to search for cues from the demonstrator than to

display his ignorance. He was also searching for meaning. Pin, what did it mean? Focal point, what or where is that? His experience told him to look for clues. These were 'held' by the demonstrator. How would the demonstrator respond? The demonstrator told him what to do and in so doing provided the clues to the puzzle. This student now 'knew' what he was doing and what was required of him.

A different set of circumstances led to a similar interaction. A group of five students were about to perform a set of experiments on an airtrack to investigate free fall and uniform velocity motion. As before full details were provided in the practical manual together with a series of questions to answer. Mr X commenced his outline by pointing to the problems to be answered and then informed them that he had a meeting to attend and that they should proceed according to the outline provided. They were required first of all to level the airbed before beginning. He then left the laboratory leaving them to proceed.

The following extract from my notes describes what happened.

"Student (A) picks up a glider and places it on the airbed. He pushes it gently and it moves slowly to the other end. It rebounds, then returns to that end. A second student (B) suggests this may be because the airbed is not level. First student (A) repeats the procedure with roughly the same outcome. Other students sit watching. What are they thinking? I decide not to interrupt. The procedure is repeated four more times. A third student (C) begins reading through the relevant sections in the practical manual. I am asked (after twelve minutes):

"What must we do?"

Interviewer: "As Mr X has said, balance the airbed."

Student A:

"How do we do that?"

Interviewer: "I don't know."

There followed prolonged discussion in the vernacular. Two students (D and E) remained silent. Student B began to play with the level screw. This time the glider moved back down the track.

So by trial and error the airbed was levelled. This had taken thirty-three minutes. A 'system' had been worked out. Verification was sought from me. I had refused. Members of the group were asked. Consensus was sought and

obtained ...

obtained. It was the first time students D and E had responded.

"What must we do?"

This time I replied by suggesting they read the practical manual for suggestions. Why was it that when all the experimental questions were presented to them, as they were in the manual, it had taken so long for them to begin to work on them? Was it uncertainty, insecurity or reluctance to 'experiment' or 'to make a mistake'? Was the manual being found wanting?

6.8.4.2.2 The impact of the manual:

The impact of the practical manual seemed significant. Whereas it gave the students a sense of security and a set of procedures to follow, perhaps akin to the core-notes demanded by the law students, I found it surprising that so few students seemed wedded to it. They preferred to pressurise the lecturer and demonstrators to explain to them what to do, and they complained when this was seen to be inadequate. Yet the manual was quite explicit. Why was it not being used as required?

First it appeared from the procedures and practices observed that these set almost all the terms and conditions of student activity. Whilst certain outcomes were expected from providing the students with a carefully 'programmed' set of activities and procedures, and here the staff pointed to the need to induct students into a way of working and hopefully into a way of thinking, what was perceived by the students did not match entirely with what staff expected. The practical manual provided a 'correct' way of doing things and also a 'correct' set of readings. Practical books were marked each week and whilst the staff awarded marks for various steps in the solution, the students all endeavoured to obtain the 'correct' answer. Assessment provided a powerful incentive. Yet it would seem that the worked examples of the calculations also induced a sense of uncertainty especially when readings different from these were made. It appeared as if the readings in the worked example were not seen as examples at all but as 'correct answers'. In this sense the manual was perhaps a threat to their own activities.

Second, when relevance and meaning is perceived in what one is doing, a sense of 'ownership' and commitment is developed. Two aspects of this emerged in their notions of what constituted a good experiment or problem and the relevance of what they were doing.

To 83% of the students a good experiment or problem was one which:

"... explains as clearly as possible the concepts of the theoretical part of the subject and makes them easier to understand."

Another student argued that this is enhanced by:

- "(1) Efficiency of the apparatus*
- (2) A well outlined procedure*
- (3) Prior knowledge of the theory involved in the experiment*
- (4) A clear demonstration*
- (5) Few students working in each group."*

These are exactly what the manual and demonstrations were designed to do. In discussing this with the students what emerged was a seeming hiatus between the lectures (theory) and the practicals (practice). The lecturers confirmed that there was no synthesis between the lectures and practicals and also suggested that this could explain the lack of meaning felt by the students. Certainly if no relevance or meaning is perceived, no connections made by the students, and what is done in lectures and practicals appears to lack a frame of reference, then difficulties are likely to be encountered. But it would seem unreasonable to expect theoretical 'data' to supply ready made answers to practical problems, as students expected it to do.

"In my opinion, the characteristics of a good experiment is one which comes after theory work, which is intended to give one a better understanding of physics and self-confidence in handling any apparatus."

One reason for this is that a practical problem has to be resolved under what Emmet (1947) calls 'bounded rationality', i.e. under conditions of uncertainty or of ignorance both of the exact situation being faced or of the outcomes of acting in one way or another. But a practical problem can give rise to theoretical considerations, to what Elliott (1977) in a different context calls 'commonsense theorizing'. Popper (1963) argues that if one is prepared to be critical of what we know through our common-sense, and if one is not prepared to take the world as one sees it for granted and one attempts to refute it, then progress is possible.

But the manual removed this opportunity as well as the 'mystery' or 'sense of discovery'. The learning experience was 'stage managed' (Atkinson and Delamont, 1976) and in this sense was no different to the theory they were being told in their lectures. But the staff's intentions were not to tell the students what to do in practicals, although as I have suggested, this they unwittingly did. The students wanted to be told what to do and in this sense the manual represented a denial of this. It represented the need to

work on their own in spite of its prescriptive nature. So what was being seen as irrelevant was anything other than what they were being told to do.

6.8.4.3 How are these students motivated in this instructional situation:

The reluctance to take the initiative, to experiment and to make the problem their own was an overall impression gained from the observations. Were the students responding to a particular classroom situation or did their reticence go much deeper? I have already argued that the question of relevance and meaning inevitably influenced the students' commitment and motivation. In addition, their replies contained evidence of a general lack of experience in laboratory and practical work. Their general clumsiness in handling the equipment reflected this, but it was interesting to see how quickly students coped and mastered these skills.

It was obvious that the issue of assessment was of crucial importance and provided a major incentive to the students. Asked what difficulties they were experiencing 71% of the students referred to the need to obtain the 'correct' answer and hence good marks. The following extract is typical:

"Mostly my readings do not correspond with the required readings and in many cases I could not complete my calculations because of this fact. What can I do if my reading is incorrect so that my experiment also can be marked?"

The sanctions of assessment go some way to accounting for their behaviour. The following student said he disliked ...

"... having to go round looking for readings from other people so as to make sure that they correspond with mine, when in fact I would have liked to use mine just as they are."

The staff complained of widespread copying which was possible because the class was divided up into groups to perform the various experiments. Students lacked confidence in their own work, the procedures were unfamiliar and they lacked experience, but the assessment was not seen by them as being educative. To them it was punitive. The mark signalled success or failure and as a result imposed sanctions on the way they worked. This is reflected in the following statement:

"The problem comes when you have to write down your results. You write down what you observed only to find that something different is expected which sort of makes one to discard the observations completely to concentrate on getting the correct answer so as to get a better mark for my prac."

A further consequence of the sanctions of assessment and the sense of vulnerability induced was that students seem to have been discouraged from becoming creative and original in their work. Parnes and Brunelle (1967) argue that creativity and the development of the confidence to be original can also be impeded by the development of mental blocks. They argue that the creative process is structured by over prominent associations and attitudes previously learned. This suggests the need for care in teaching principles, rules and procedures which, though they may be efficacious in a standard context restrict subsequent originality. In relation to the actual course two broad statements are indicated:

First, if the assessment process is intended to function in terms of evaluation, diagnosis and for grading, then a number of assessment events are required. At present students see the assessment as for grading purposes only, with the consequent influence on their behaviour.

Second, if the assessment is for grading purposes only, then it will not constitute usable feedback for the student unless he is in a position to interpret it by being aware of the full detail of grading procedures and policy. At present grading is seen in punitive terms only.

6.8.5 CONCLUSION: The nature of the contract:

In both courses observed a fundamental element concerned the lecturers' possession of, access to and control over the knowledge. This was not entirely recognised by the staff nor would they accept this assertion, yet the practices observed reinforced this view. Where the level of knowledge acquisition is 'measured' in a single mark, based on individual test results or experimental results, the level of 'cue-seeking' evident in the extracts quoted can be understood. Given also the evidence presented in chapters four and five where the quest for certification is tied up with socio-economic status and power, the consequent sense of vulnerability felt by students inevitably influenced the overall academic ethos of the classroom. Student performance is not a simple response to the lecturer's offerings, but seems to be the product of a complex set of actions in a complicated and demanding social setting. Where access to a qualification is threatened tension and frustration is common, particularly at examination time. The importance of marks and the total control by the lecturers over their distribution seems to prevent the students from acting as ...

"... autonomous intellectuals (who can) pursue learning for its own sake ... (instead they) ... must seek information on faculty behaviour ... before they can plan what they will do."

Becker et al (1968)

The total situation here is not dissimilar to that described by Dave and Hill (1974) with reference to India.

"A person's standing in the examinations affects many aspects of his life. Not only is it a basis of his economic success, but it affects his prestige in his family and his (or her) value in the 'marriage market'. The examinations thus form the basis of a kind of educational caste system, superimposed on the traditional caste system of the country."

At the root of the confrontation over notes in the law class and assessment more generally was a conflict between two antithetical sets of values. At one extreme were the work values propounded by the lecturers that appealed to the inner standards of conscience and promises self-achieved fulfilment. At the other were the values, in part a legacy of the total context in which the students find themselves, and in part reinforced by the practices in these classes and in other classes too, which invoke external arbiters, threaten exclusion and evoke anxiety. At the same time, however, the staff concerned moved between these two positions and there were discrepancies between what was said and done. Yet the students believe the 'contract' as perceived by them to be binding, and that in spite of the lack of clarity. Although perhaps based on a misconception, the 'contract' becomes a 'reality' and this accounts for the frustration and anger evident in the student responses when it appears to have been broken. Similarly staff appear to have differing views of the 'bargain'. The evidence suggests that staff and students 'negotiate' a working relationship which in the case of the law class led to a change in the quality of what was offered. In the physics class the staff were 'protected' by the prescriptive nature of the manual.

A complex interaction exists between the student, his expectations, the work, the lecturer and his 'offerings', the institutional norms and the means by which he comes to cope with his environment. The student seeks regularity and confirmation, adopts particular patterns of working in response to various situations, and also attempts to 'subvert' other situations to his own style. A set of procedures is 'negotiated' through a series of formal and informal activities.

At ...

At the same time, however, no student can confidently assume 'ownership' or 'possession' of this situation. The evidence suggests a number of reasons for this. First, in the courses observed, difficulty was expressed in seeing the relevance of much of what is being done. Evidence from the student responses, generally, reflect a similar problem. There was little indication that knowledge is perceived as anything other than 'given' and 'precise'. Students are not involved in the formulation of a problem, the clarification of assumptions about the situation to be studied, the choice of analytical techniques and the disentangling of value judgements and empirical judgements.

Second, student comments reflect an uncertainty and lack of self-confidence in their own thinking ability. The accusation levelled at them is that they lack initiative and commitment. Students express a reluctance to deviate from their perceptions of the norm even when this is contrary to what they already know. They do not, as a result, construct their own personal version of their discipline. Instead they feel safer to receive courses passively, waiting for the 'truths' to be expounded. The veracity of their actions is confirmed by the assessment requirements.

Third, commitment and taking the initiative to formulate one's own opinions and problems, and to decide on one's own course of action involves taking risks. In an open atmosphere of mutual confidence and trust where individual worth is recognised as a fundamental starting point, intellectual curiosity, the ability to assess the value of evidence objectively and impartially and the development and dissemination of new ideas, is possible. Where the constraints and sanctions of the context are as they are, the characteristics described in this chapter are perhaps inevitable.

A consequence observed was the tendency for successful students to perceive internal factors, their own understanding and intrinsic interest, as more important causes of their own performance. The students who were struggling, on the other hand, tended to perceive external factors as more important. Hence, criticism of the lecturers and demonstrators, of inadequate resources and seemingly unrealistic demands was more evident in the responses of unsuccessful students (cf. Bradley, 1978).

In the preceding pages I have been concerned with how students and lecturers appear to interpret events from their world and the ability they have to control them. The ability to transform is closely linked with the power to control. This can restrict and stultify development or it can allow for

growth. Each has his 'world' but how a person operates within this world can be facilitated or hindered according to his encounters.

FOOTNOTES

- (1) As the secondary scales are derived from the four primary scales, reliability coefficients were calculated for the primary scale only.
- (2) Generally, these students have been at Fort Hare for four or more years.
- (3) Messrs Makalima, Gebeda and Proctor. As only one is a native English speaker, the comments of the others regarding the framework of understanding in which the test statements are set were particularly useful. It would seem important that a substantive linguistic study be carried out into the students' linguistic patterns especially as they may affect understanding.
- (4) Bloom's taxonomy has been criticised for this in many quarters. See, for example, Pring (1971), Sockett (1971), Eisner and Vallance (1974), Stenhouse (1975), Reid (1975) etc.
- (5) See also paragraphs 208ff and paragraphs 72 and 73 where he makes the point that the appeal to what is common cannot be so simple and straightforward.
- (6) On page 55 of Personal Knowledge, he writes:

"When we use a hammer to drive in a nail, we attend to both nail and hammer, but in a different way. We watch the effect of our strokes on the nail and try to wield the hammer so as to hit the nail most effectively. When we bring down the hammer we do not feel that its handle has struck our palm but that its head has struck the nail. Yet in a sense we are certainly alert to the feelings in our palm and the fingers that hold the hammer. They guide us in handling it effectively, and the degree of attention that we give to the nail is given to the same extent but in a different way to these feelings. The difference may be stated by saying that the latter are not, like the nail, objects of our attention, but instruments of it. They are not matched in themselves; we watch something else while keeping intensely aware of them. I have a subsidiary awareness of the feeling in the palm of my hand which is merged into my focal awareness of my driving in the nail."

- (7) What is meant by this distinction between cognitive and affective?

According to Bloom et al (1956) the term cognitive covers

"activities such as remembering and recalling knowledge, thinking, problem solving, creating"

whereas the affective domain covers such things as:

"interests, attitudes, values, and the development of appreciations."

Pring (1971) suggests that this distinction ...

"rests upon the belief that the cognitive capacities - the ability to know and to think and to understand - can be conceptually isolated from the feeling side of mental life and analysed without reference to it ..."

But, he continues,

"... it does not make sense to have knowledge as one's objective ... without caring about those standards of trust and correctness which are built into what it means to know and to understand and to appreciate. To think scientifically entails a concern - a feeling if you like - for the standards of scientific truth."

Similarly, he argues that it is equally erroneous to consider the 'affective' notions independently and without ...

"reference to the particular knowledge, understanding and evaluation by which they are identified and to which they are logically connected."

- (8) Being a white staff member made this impossible here and so more generalized and less reliable procedures had to be adopted. There exists a fruitful field of research for a black scholar interested in an ethnographic study of student behaviour.
- (9) I shall later describe how in one particular department in the law faculty this dependency led to increasing pressure by students on the lecturer to hand out roneoed copies of his lecture notes.
- (10) A number of students in the department of Psychology told me that this was the method they used. An evaluation of Robinson's work forms part of their course work.

(11) Some Associations:

The end of year results of 767 students was known by the time this analysis was undertaken so it has been possible to separate students into a pass/fail group. Yet the seeming confusion of data with its multiple connections made a systematic analysis difficult. Nonetheless an attempt was made to group students according to the problems they listed, their work orientation and the time they reported they spent studying.

The following criteria were set for 'group' membership in each of the above areas:

Problems:

Six problem areas were identified by the students⁽¹²⁾ and, as was pointed out, considerable overlap existed between these various areas. Given the difficulties of deciding how genuine the problems really are, and the particular uniqueness of a problem to an individual, any grouping must be somewhat crude. An arbitrary criteria for group membership was laid down, therefore. The following was adopted: those students whose problems touched on three and fewer problem areas and those whose problems concerned more than three of the areas.

Work Orientation:

Here a distinction was made between those students who appeared to be aware of what is required of them, especially as this relates to examinations, and those who are not. This is similar to the Miller and Parlett cue-conscious and cue-deaf criteria, but the basis for inclusion into one group or the other is more general than theirs. Where a student spoke of his lack of understanding about what he was being required to do, he was then placed in the 'unaware' group. There was, quite obviously, much overlap between this group and those who fell into one or the other 'problem groups'. In addition I was particularly interested trying to separate out those students who made the distinction between what Oakeshott (1962) calls ...

"... a 'language' (by which I mean a manner of thinking) and a 'literature' or a 'text' (by which I mean what has been said from time to time in a 'language'). It is the distinction, for example, between the 'language' or the manner of thinking of a scientist and a textbook of geology or what may be called the current state of our geological knowledge."

Time studied: ...

Time studied:

This was the easiest to classify as students had been asked to record the number of hours, apart from attendance at lectures and practicals, they spent studying. The students who took subjects which included practicals were separated from the others as a typical first year science student could have four, three hour practicals a week in addition to twelve or more hours of lectures a week. Hence, for students with practicals the following group criteria were decided upon: 0 - 5 hours, 6 - 10 hours, 11 - 15 hours, 16 - 20 hours, above 20 hours.

For the rest, the criteria were: less than 10 hours, 11 - 15 hours, 16 - 20 hours, above 20 hours.

Results:

It is again necessary to reiterate the need for caution when evaluating the following results. The exercise was undertaken to see whether or not any association existed between the 'variables' raised and academic success.⁽¹³⁾ But the grouping, especially regarding awareness or lack thereof, rested on fairly loose criteria. Regarding the number of problem areas raised, here too I do not deny the possibility that one single problem area could have greater ill-effects than four or five put together. The criteria are essentially crude.

With reference to time spent studying, here too one is relying on the accuracy of what the students reported.

By hedging in the aforementioned with so many conditions it is reasonable to question the veracity of the exercise. As some association was found between the clarity of thinking and expression and academic success, I felt the analysis might yield something relevant.

With 1 degree of freedom the resultant Chi Square, 2.871, $p = 0.05$, between academic success and number of problem areas cited, failed to confirm the hypothesis at the 5% level. The null hypothesis that no relationship between academic success and the number of problem areas cited was retained.

With 1 degree of freedom the resultant Chi Square, 4.045, $.05 > p > 0.02$, between academic success and work orientation awareness/lack of awareness, confirmed the hypothesis at the 5% level. The null hypothesis was rejected.

With 4 degrees of freedom, the resultant Chi Square, 12.388, $0.02 > p > 0.01$, between time studied and academic success for students taking practical courses, confirmed the hypothesis at the 2% level. The null hypothesis was rejected.

With 3 degrees of freedom, the resultant Chi Square, 7.793, $p > 0.05$, between time studied and academic success for students not taking practical courses, failed to confirm the hypothesis at the 5% level, the null hypothesis being retained.

Comment:

The reservations which bounded this exercise probably account for the ambivalence in the above results. Insofar as any conclusion may be drawn from these results the significant Chi Squares reported earlier regarding the clarity of thinking and these concerning awareness of requirements suggest that these qualities are conducive to success in one's studies. The difference between the predominantly science orientated group which have practical classes and the rest, where no significant association was found between time studied and academic success, could reflect the other differences already reported between science faculty students and the rest. Perhaps, too, it is a question of where one has a limited amount of time one tends to use it most efficiently.

- (12) See chapter 5. Problems were related to: students' own ability, subject choice/counselling, transition from school to university, social conditions on the campus, assessment procedures, staff-student relations.
- (13) Here, as in the prediction study, a student failing three or more subjects was regarded as a fail, those failing 0, 1 or 2 subjects being classified as a pass.
- (14) My work was well known to the two persons concerned. They knew I was not entirely happy with what the students had written and said. It was whilst discussing the issues involved that the suggestion was made to join their classes. Both colleagues had a composite section of work to teach, and, in the case of law, the course culminated in a semester test. My colleague in physics had himself begun some research on the teaching of physics, so we had much to share. The fact that his course was a practical one was fortunate in that it provided a contrast to the history of law course.

- (15) Three components represent 'cue-consciousness':
- (i) Cue-seekers, who deliberately made an effort to pick up hints and make a good impression;
 - (ii) Cue-deaf, who made no effort to do as the cue-seekers, nor did they perceive the need to;
 - (iii) Cue-conscious, who recognised the need to be perceptive and receptive to cues but did not deliberately do as the cue-seekers.
- (16) Where cue-conscious students recognise course requirements for what they are, and these happen to be rote-memorization of a particular set of facts, they do not believe they are studying for insight. This emerged in the interviews with the law students.
- (17) A 'Duly Performed' certificate is awarded on the satisfactory completion of course work and entitles a student to write the end of year examinations. Yearmarks count 50% of the total final mark.
- (18) One exasperated student said to me during a lecture:
- "Mr Penny, my hand is not as fast as his mouth."*
- (19) In other instances students were critical of the University of South Africa's notes and especially of lecturers who just read from them instead of providing their own notes during their lectures.
- (20) The first practical was a general class practical with all students performing simple measuring experiments using a micrometer, vernier calipers and an electrical balance. It was also an occasion for introducing the students to general laboratory procedures.
- (21) Physics I was split into two groups: those intending to major in physics, and those taking only one course. I observed a latter group.

S.S.H.A.: RELIABILITIESTABLE I

Scale	<u>Test - Retest</u>			<u>Spearman-Brown</u>		
	Male	Female	Total	Male	Female	Total
Delay Avoidance	0.652	0.604	0.644	0.603	0.560	0.595
Work Methods	0.671	0.618	0.642	0.604	0.630	0.613
Teacher Approval	0.596	0.603	0.587	0.582	0.642	0.600
Education Acceptance	0.512	0.507	0.502	0.469	0.463	0.458
N	286	136	422	286	136	422

TABLE 2S.S.H.A.: Ambiguous Items

The following terms/statements were found to be ambiguous:

<u>Item No.</u>	<u>Statement</u>
Instructions	The five point scale
5	The possible misunderstanding of 'made up'
9	The possible misunderstanding of 'day-dreaming'
12	The possible misunderstanding of 'assignment'
13	The possible misunderstanding of 'assignment'
22	The possible misunderstanding of 'assignment'
23	The possible misunderstanding of 'narrow-minded and set in their ways'
29	The possible misunderstanding of 'businesslike'
41	The possible misunderstanding of 'get the blues'
42	The possible misunderstanding of 'skip' ... and ... 'assignment'
43	The possible misunderstanding of 'giving their pupils a "hard time"'
58	The possible misunderstanding of 'assignment'
60	The possible misunderstanding of 'day-dreaming'
63	The possible misunderstanding of 'average pupil'
71	The possible misunderstanding of 'real purpose of education'
83	The possible misunderstanding of 'flattery'
91	The possible misunderstanding of 'ridiculous assignments'
96	The possible misunderstanding of 'skipping'.

(cf. Appendix 6.1)

TABLE 3

r = Item discrimination index
 Δ = Item difficulty
 * = Doubtful item
 ** = Item rejected

Delay Avoidance					Work Methods					Teacher Approval					Education Acceptance				
Item No.	pH	pL	r	Δ	Item No.	pH	pL	r	Δ	Item No.	pH	pL	r	Δ	Item No.	pH	pL	r	Δ
1	.84	.21	.62	12.7	2	.87	.75	.18	9.4	3	.93	.21	.72	12.0	4	.71	.43	.29	12.3
5	.73	.48	.26	11.9	6	.92	.21	.72	12.0	7	.87	.20	.66	12.5	8	.63	.49	.14	12.4
9	.65	.36	.29	12.9	10	.81	.14	.66	13.3	11	.71	.34	.37	12.7	12	.69	.41	.21	12.5
13	.81	.41	.36	12.1	14	.69	.12	.59	14.2	15	.73	.42	.32	12.2	16	.58	.49	.09	12.6
17	.89	.16	.71	12.6	18	.78	.69	.11	10.5	19	.61	.38	.23	13.1	20	.54	.39	.15	13.4
21	.93	.18	.74	12.2	22	.91	.45	.53	10.9	23	.59	.36	.23	13.3	24	.62	.31	.32	13.4
25	.76	.14	.62	13.6	26	.97	.21	.78	11.5	27	.70	.46	.25	12.2	28	.76	.26	.50	12.9
29	.58	.43	.10	12.7	30	.96	.27	.73	11.3	31	.83	.17	.65	13.0	32	.73	.34	.39	12.6
33	.85	.78	.11	9.4	34	.93	.18	.74	12.2	35	.91	.27	.65	11.8	36	.59	.31	.29	13.5
37	.93	.27	.68	11.6	38	.94	.11	.80	12.6	39	.67	.48	.20	12.2	40	.61	.23	.39	13.9
41	.58	.62	.34	10.2	42	.78	.39	.40	12.1	43	.71	.36	.35	12.6	44	.62	.44	.18	12.7
45	.96	.27	.73	11.3	46	.91	.22	.69	12.1	47	.59	.48	.11	12.6	48	.69	.27	.42	13.2
49	.84	.34	.52	12.0	50	.86	.26	.60	12.3	51	.76	.20	.56	13.2	52	.83	.41	.45	11.7
53	.78	.36	.43	12.2	54	.79	.15	.63	13.4	55	.93	.10	.79	12.7	56	.54	.36	.18	13.5
57	.81	.31	.51	12.3	58	.80	.51	.32	11.3	59	.69	.37	.32	12.7	60	.59	.34	.25	13.4
61	.76	.29	.47	12.7	62	.93	.17	.75	12.2	63	.71	.39	.33	12.5	64	.58	.48	.10	12.7
65	.63	.23	.41	13.8	66	.89	.16	.71	12.6	67	.82	.46	.39	11.5	68	.97	.13	.82	12.0
69	.61	.42	.19	12.8	70	.97	.24	.77	11.4	71	.61	.52	.09	12.3	72	.86	.11	.73	13.2
73	.73	.61	.14	11.2	74	.93	.11	.79	12.7	75	.78	.39	.40	12.1	76	.95	.09	.82	12.6
77	.71	.35	.36	12.7	78	.89	.16	.71	12.6	79	.65	.31	.34	13.2	80	.69	.37	.32	12.7
81	.86	.50	.34	11.3	82	.62	.47	.15	12.5	83	.72	.29	.43	12.9	84	.59	.37	.22	13.2
85	.97	.21	.78	11.5	86	.87	.33	.56	11.8	87	.80	.43	.39	11.7	88	.79	.22	.56	12.9
89	.94	.18	.75	12.1	90	.80	.25	.55	12.7	91	.71	.53	.19	11.8	92	.86	.13	.71	13.1
93	.62	.44	.18	12.7	94	.81	.09	.71	13.7	95	.67	.39	.29	12.7	96	.58	.49	.09	12.6
97	.94	.11	.80	12.6	98	.97	.14	.82	12.0	99	.95	.31	.69	11.2	100	.61	.37	.24	13.1

1. It is the correlation between the criterion score, which forms the basis for the selection of the high and low 27% groups, and the continuous score assumed to underline responses to the items.

2. The pH and pL values were calculated as follows:

$$pH = \frac{\text{(Number of individuals in the top 27\% who answered positively to the specific item)}}{\text{(Number of individuals in the top 27\%)}}$$

$$pL = \frac{\text{(Number of individuals in the bottom 27\% who answered positively to the specific item)}}{\text{(Number of individuals in the bottom 27\%)}}$$

3. Delta (Δ) represents item difficulty. It increases with item difficulty.

CHAPTER SEVENSUMMARY AND RECOMMENDATIONS

- 7.1 Introduction
- 7.2 Concerning the Modes of Enquiry
- 7.3 Concerning the Academic Aptitude Test
- 7.4 Concerning the Interactive Situation
 - 7.4.1 Introduction
 - 7.4.2 Values and Perceptions
 - 7.4.3 The Teaching-learning situation
 - 7.4.3.1 Observations
 - 7.4.3.2 Concluding remarks
 - 7.4.3.2.1 Considerations
 - 7.4.3.2.2 Recommendations for Action and Suggestions for Future Research
- 7.5 Postscript

CHAPTER SEVEN

SUMMARY AND RECOMMENDATIONS

7.1 INTRODUCTION:

The complexity of the relationship between the influences affecting academic success and failure of students makes it very difficult to present a coherent picture. The data, being the outcome of tests, interviews, open-ended essays, questionnaires and observation, is an attempt to illuminate the complex problems experienced by hundreds of individual students within an equally complex and dynamic teaching-learning situation. In accepting that it was impossible to regard the learning activity of students from a static, reductionist standpoint, and that it was not amenable to such scrutiny, was also to accept the impossibility of providing a seemingly neat set of conclusions. The entire process is part of the dynamism of life. It is

"... continuous, historical and hierarchical, reflective as well as ongoing, constrained as well as goaded by the experiences of the past, drawn into a flight of hope as well as overshadowed by the restraining tyranny of the future ..."

Wankowski (1973).

In the preceding pages I have been concerned with how first year students appear to interpret events from their world and the ability they have to control them. The ability to transform is closely aligned with the power to control and the desire, or lack thereof, to identify with these events. This can restrict and stultify development or it can allow for growth.

This study fell into two distinct parts; that concerning the suitability of the Academic Aptitude Test (A.A.T.) (University) as a screening and counselling device, and that concerning the complex interactive situation in which student learning takes place. An additional scenario was played out, too, concerning the modes of enquiry used. As each chapter has its own specific conclusion, what is presented here is a synthesis of the broader issues which emerged and which are seen as areas of importance.

7.2 CONCERNING THE MODES OF ENQUIRY:

Two distinct modes of enquiry were used in this study. Although the study was originally conceptualised nomothetically, a response to a rapidly changing and complex situation necessitated different modes of enquiry.

This ...

This in turn prompted a re-evaluation of the epistemological assumptions underpinning the nomothetic and idiographic traditions. The centrality of the act of interpreting which is found in the second part of the study is based on the claim of *authority grounded in experience*. This is different from *authority grounded in expert control of method* which characterises the first part of the study. Whereas in the study of the A.A.T. where claim to an objectivity may be made in terms of the battery itself and the methods used, no such objectivity is claimed in the latter part of the study. It rests not in a static method or procedure but in the probing of social reality as characterised by intersubjective and common meanings. Where one is dealing with a subject-subject relationship, as distinct from a subject-object relationship, where one is concerned with the particulars of the context in which action is taking place, as well as the action itself, and where a characterization of the situation in terms of the language and perspectives of the particular participants was required, a different mode of enquiry was needed. But, as I have argued in chapter two, the shift also involves a reconsideration of the epistemological assumptions underpinning the nomothetic and ideographic traditions and associated research procedures. The fact that this study now appears between covers is evidence that some reductionism has taken place, but I wish to emphasise that this implies that the statements made about a dynamic and complex interactive situation should be read in an awareness of the non-static nature of its existence.

The success of this study depended largely on the probity of the participants. This, as has been suggested, is influenced by numerous factors but one feature of the work with the staff is noteworthy. They actively assisted me and I would suggest that this was because they regarded me as outside their particular discipline and relatively untutored in the subject. As such I represented no threat. Where perhaps a threat did exist concerned their teaching methods, but this only really applied in the two classes observed. It would seem, therefore, that where this impression is reinforced by avoiding discussion of the subject matter itself, it is possible to obtain the evidence recorded in this dissertation.

It is recommended, therefore, that investigators who study any community in its complexity should consider methods more appropriate to it and to the nature of the human sciences.

7.3 CONCERNING THE ACADEMIC APTITUDE TEST (UNIVERSITY) (A.A.T.):

The need to intervene in the process before students are condemned to educational failure was a fundamental principle behind this study. The A.A.T. was chosen because it was the only commercially available aptitude battery which had been standardised for black university entrants. Nonetheless, the claims of its authors were wider than those of other batteries (e.g. SAT) in that it was claimed that the battery could not only serve as an indication of the academic potentials of first year university students, but also as a subject and course study indicator.

Although the total population studied ($n = 981$) in this research was smaller than that used in the standardisation of the battery, its value as an index of academic success and, as such, as a potential screening device, has been demonstrated in this particular context. One cannot assess the effects on the criterion of academic success used (end of year examination results) of the unrest on the campus, the closing of the university and the disruption of lectures which occurred over the three years of the study, however. Whether or not the predictive quality of the battery would have been enhanced had there been an uninterrupted academic year is impossible to say, but when compared with that of the matriculation results, the A.A.T. was more effective.

Its value as a counselling device, however, was not confirmed with the particular population studied. The results did not reveal particular course or subject related variables. This, I have suggested, is not surprising considering the limited number of test variables in the battery. The A.A.T. is not a vocational aptitude test battery and it would seem that its emphasis on language and mathematical ability places it nearer to an achievement test.

Nonetheless, there seem to be two major advantages in using a battery which gives more weight, as the A.A.T. does, to potential than to recent learning experiences.

First, performance will be less affected by the range in the quality of schooling students have experienced.⁽¹⁾

Second, where matriculation examination results appear to reflect the effectiveness of the rote-learning practices common in schools, and which are believed to be one reason for failure at university, the present advantage of teaching for the examination would be reduced.

It is recommended, therefore, that the A.A.T. battery be used as a means of identifying students at risk. Thereafter, inter-personal means are suggested to counsel students considered to be at risk.

7.4 CONCERNING THE INTERACTIVE SITUATION:

7.4.1 INTRODUCTION:

In looking at the student values, their perceptions and definitions of the learning situation and the total context within which it is embedded, I was forming a backdrop against which their particular difficulties and problems could be assessed. In the course of the students' interaction with the institutional requirements, and with each other, a common and collective frame of meaning developed. Though their problems vary, their coping strategies were essentially similar and their responses seem to reflect a 'conventional wisdom'. This was not acquired without some 'disturbance' and it would seem that the first year is very much one in which this 'conventional wisdom' is negotiated and in a sense grafted on to that which the individual brings to the new situation. Whether the 'graft' is successful and develops and matures on such a 'scion' depends on many factors in the teaching-learning situation and on the individual's response to that situation.

7.4.2 VALUES AND PERCEPTIONS:

The evidence suggests that the reward motive is particularly powerful, revealing itself, as it does, in a functional utilitarian view of knowledge and of a university education. This was confirmed by the low incidence of self-expressive and autonomy values. Nonetheless, this was not seen purely in individualistic terms, but in terms of group responsibility. This was itself related to individual educational success in the face of social and economic hardship. Assuch, therefore, a university education is seen as a tremendous opportunity; an opportunity to acquire professional skills which will enhance job prospects, bring financial security and a concomitant higher standard of living. The alternative is starkly different.

This belief appears to be reinforced by an environment which has come to judge success and failure by material rewards. The vigorous use of the examination merit principle at school and at university has a significant consequence. Any kind of learning activity which does not appear to contribute to passing examinations is devalued. Allied to this is the expectation that, once qualified, material benefits will accrue. This orientation of the 'non-arrived' seems to fit well a deprived working class

model, too, where 'workers' are involved in a 'struggle' for status and mobility. The actual course of study appears to be immaterial to the quest for a qualification.

Reflection on their future prospects illuminated the wider context in which this education takes place, and the implicit contradictions. Whilst benefits are expected to accrue from their studies at Fort Hare, there is a great deal of criticism of Bantu Education, and all that it implies. This includes criticism of the ethnic nature of Fort Hare. Their education is seen as a means by which black aspirations are channelled into the service of the ethnic homelands. This is rejected. The students see their future as participants in a shared South Africa. Hence, Fort Hare is seen as an instrument of political control in that it gives expression to an explicit political ideology. It is representative of the network of economic, political and ideological constraints found in the wider South African context. Whilst the evidence suggests that the students are unwilling to comment on the seeming compromises they are making by attending this institution, because of the lack of choice offered them, evidence of a lack of commitment to an institution they come to not out of choice but out of necessity for a degree, can probably be explained by these contradictions. Perhaps, too, they realise they will occupy an elite position and it is the fear of losing this in the event of a socialist-type revolution, that accounts for the fears and uncertainty expressed by many of the respondents. Whether any of these students will form the vanguard of change seems to depend on the nature of that change, for the evidence appears to indicate that the changes they should like to initiate are unlikely to be regarded as 'revolutionary'. They may also perhaps see their skills and expertise as having currency under any political dispensation, although the material rewards are likely to be greater within the capitalistic system for which they have been trained.

Given the evidence collected, one can only speculate upon these latter issues. The population studied were first year students only and, whilst this is not to under-estimate the degree of politicization they have already experienced, it is recommended that a longitudinal study of student perceptions be undertaken preferably by a black scholar who also speaks the vernacular. This could include a comparative study of students on all the black campuses.

7.4.3 THE TEACHING-LEARNING SITUATION:

7.4.3.1 Observations:

The problems experienced by first year students are perceived differently by staff and students. Whilst staff tended to emphasise the inadequacies in the students' conceptual ability and associated learning problems, the students tended to focus on whatever was regarded as necessary to pass their examinations. The evidence from an assessment of student difficulties and from the two classroom studies suggests four major observations:

First it would seem that the individual student's readiness to learn effectively at university depends on habits, practices and attitudes derived from past experiences of learning which are projected into the expectations and assumptions about learning in the future. The evidence suggests that students have a functional utilitarian view of knowledge and that academic success can be achieved through rote memorization. At university courses are regarded as content given to the student by the lecturer. The outcome, as far as the staff is concerned, is what has been termed 'a perfunctory approach to learning'.

Second, continued academic success is more likely to be maintained if the teaching-learning conditions at the university match those of the past. The evidence from the staff, in particular, emphasises the mismatches in expectations. Yet, as was pointed out in chapters five and six, this is not a simple matter of an inadequate pre-university training. The interactive situation is extremely complex. Not only is there a tension between what is conceived as a 'good' education and what is perceived as an 'effective' education, but the ecology within which this takes place is not conducive to the development of what might be regarded as a 'good' education. Nor is this situation static. The evidence suggests an on-going redefinition by staff and students of expectations and requirements. Where mismatches occur these are as a result of action by both staff and students.

This also accounts for the third observation. Difficulties and failure appear more likely when the conditions of learning and teaching appear to the student to be, at best, different and unfamiliar, and, at worst, alienating and bewildering, and therefore contrary to habitual expectations and practice. It takes time before the individual student registers values of acceptance and recognition, if this ever happens. From the expressions of powerlessness

and anxiety it is evident that the security and confidence derived from the past has been upset.

At the individual level of response there seems to be a 'repudiation of self', a feeling of 'worthlessness' (Erikson, 1971). Whereas staff accept in principle that each new teaching endeavour needs to be preceded by an evaluation of what the students already know in a given field, the evidence suggests that both staff and students believe they are starting from scratch and in this their own behaviour reinforces the preconception. Unfortunately, however, staff do not appear to recognise that this evaluation should also include the manner and nature of the student's past learning styles.⁽²⁾ The claim to foster an independence of judgement and an independence of working does not seem necessarily to be matched in practice. In the case of the law class, however, the process was, perhaps, accelerated resulting in anxiety and confusion. At a corporate level it would seem that the individual drives, dispositions and personal idiosyncracies are subject to the common pressures derived from the goals of the institution and the context in which it is embedded.

An everpresent problem in these circumstances is that staff sympathy and support for relatively disadvantaged students could be insufficiently moderated by a concern for accuracy in judgement.

Fourth, notwithstanding these mismatches, students manage and succeed in adopting new and efficacious ways of dealing with the contradictions they experience. It has been suggested that successful students are more aware of the course requirements, although they do not necessarily share a common commitment to their respective disciplines, in particular, or to the institution, in general.

7.4.3.2 Concluding remarks:

7.4.3.2.1 Consideration:

In making any recommendations for action on the basis of the evidence presented, it is necessary to stress that first year students are subject to a far greater range of intimately personal influences than those explored in this study. These need to be explored. A number of assumptions underpin the recommendations.

Concerning the total context within which the university is embedded, it is necessary to take the status quo as a starting point. The appropriateness

of the present arrangements is of concern. Given a different political, social and economic dispensation, one should hope that appropriate means are developed to meet those demands.

The recommendations for action are based on the following assumptions:

First, individual students are unique and largely autonomous in the sense of striving towards control of the social and environmental forces outside them,

Second, one has to avoid 'telling' students how to study, of imposing a method onto a group without exploring the problems inherent in such an approach.

Third, one needs to sensitise students to the fact that success largely depends on themselves. They need confidence in learning, self-awareness of their own learning processes and the security to be independent.

7.4.3.2.2 Recommendations for Action and Suggestions for Future Research:

The following recommendations are made to meet a situation in which over 80% of students take more than the minimum time to complete a degree.

7.4.3.2.2.1

That academic staff, especially those responsible for teaching first year students, give consideration to meeting the special needs and requirements of these students by designing appropriate introductory courses.⁽³⁾ There is need for research at the developmental and tuition levels which reflects a sensitivity to context.⁽⁴⁾

7.4.3.2.2.2

That an extended summer school or orientation programme for all prospective first years be instituted at the beginning of each year, extending from the second week of January to the middle of February when students normally register. During these five to six weeks students could:

- *be tested for their academic aptitude,*
- *be counselled individually about their proposed courses of study,*
- *embark on an appropriate learning to study programme,*
- *be familiarised with staff expectations,*
- *be familiarised with the workings of the library,*
- *be introduced to the cultural and social opportunities on the campus.*

7.4.3.2.2.3

That consideration be given, in spite of the political implications, to normalising an existing phenomena, by making the duration of degree courses at least four years. ⁽⁵⁾

7.4.3.2.2.4

That an illuminative study be made of the innovative ecology of the University of Fort Hare.

7.5 POSTSCRIPT:

There is no formal 'conclusion' to this piece of work. It seems to me that the essence of educational research is the development through theorizing of the capacity to reflect about and thereby to improve practice. Such theory therefore is seen as being founded upon the experience of educational process and is, I believe, useless to the practitioner unless he can subject it to situational verification by taking educational action.

Hence I wish to end with the following quotation from T.S. Elliot:

*"We shall not cease from exploration
and the end of all our exploring
will be to arrive where we started
And know the place for the first time."*

Little Gidding.

FOOTNOTES

- (1) For example, there is evidence from the studies quoted by Lanham (1979) and that by Deakin (1973) which suggests that students who have been taught by native English speakers gained better school grades than those who had not had this opportunity. The use of aptitude tests would make for a more realistic assessment of a candidate's potential. Whether one can infer that these tests also minimise the effects of the quality of the student's schooling is difficult to assess. The arguments concerning the relative influence on academic achievement of heredity and environment are well documented and range from one extreme to the other. (cf. Brody and Brody, 1976, and Craig, 1977). I have no intention of entering the debate, and my position, as reflected in this study, is a pragmatically neutral one. I wish to stress that the failure of the matriculation results to provide an effective index of student potential at Fort Hare, as distinct from the Academic Aptitude Test, reflects the merits and demerits of these measures alone. If one set of measures provides a more effective prediction of academic success than another, it is the measures themselves on which one should focus attention. No inference should be drawn on this evidence alone as to the influence on student performance of the quality of schooling. At the same time, however, the evidence in chapters four, five, and six, does indicate that the student's school experience does not meet the requirements set by many staff. So where a set of tests (Matriculation Examinations) is largely based on that experience, and is found wanting, it is justified to apply different criteria.
- (2) Provision for improving students' study techniques at British universities follow four main approaches:
- (i) Tutorial assistance on a one to one basis as has been developed at the University of Birmingham.
 - (ii) Self-study centres containing a wide range of materials to enable students to work at their own convenience and pace on areas of difficulty. Tutorial assistance is available as a 'back-up' (e.g. Brunel and Strathclyde).

- (iii) Formal courses based on either the approach initially developed by Buzan and Chibnall at the University of Sussex or by Gibbs and Northedge at the Open University. The former emphasises associative thinking and its use in study through creative patterns. Reading skills, organisation of study, note-taking and mnemonics are also dealt with.

The latter starts from the student's existing methods of study.* A type of structured group discussion enables students to become more aware and critical of their own methods of study and also those of their fellows through working on an actual study task.

- (iv) Booklets that are written internally and issued to all new undergraduates (e.g. Edinburgh, Leeds and Surrey).

*The Gibbs' approach, which concurs with the principles and assumptions proposed in this study, takes as its starting point the need to encourage students to become autonomous learners. It encourages students to start by looking at their existing study habits and does not aim to discourage or destroy the skills they already possess; rather it builds on them.

Using this approach the student is required to engage in a specific and fairly familiar task. It is based on the belief that activity, rather than passive listening to precepts, is anxiety reducing and, as such, increases relaxed intellectual effort. Familiarity of material as well as of task is beneficial since it fulfils the common-sense pedagogic rule that we should proceed from the mastery of what is known to the mastery of what is new. Finally the 'structured group' learning procedure enhances the general education process since peers are not usually so prohibitively perfect as to stun someone who feels incompetent into apathy.

There are, however, students who may not need to respond to this approach: many seem only too glad to be told what to do and welcome prescriptive teaching as a way of reducing worry. This may be especially so for many of the Fort Hare students who have come from an authoritarian school system. It may also not be economic in terms of time to follow the Gibbs' approach.

On the other hand, there are also students who tend to be independent, creative, exploratory and radical, and often bored, anxious and insecure as a result of unvarying methods of tuition. It is these who may flourish in the 'non-directive' milieu of group learning. The problem is, of course, how to organise such sessions without taking too much of the student's time, especially in cases where the timetable is already heavy as in the applied sciences.

- (3) "Nothing is as unequal as treating unequals equally." (Anon).
 Appropriate courses and teaching methods can have a significant effect on student performance and their affective responses to the discipline. This has been particularly evident in the special English course launched this year by Ms Sarah Murray under the auspices of the British Council.

The design of an appropriate introductory course, perhaps as has been developed at the University of the Witwatersrand, would seem essential to bridge the gap between schools and universities.

- (4) There is increasing concern over the need for university staff to relate changes in their disciplines to the teaching demands, and the call to 'improve university teaching' is a familiar one. I wish to suggest, in the Fort Hare context, that care needs to be taken to avoid a too ready acceptance of quickly offered 'solutions'. These are more often based on simplistically interpreted experience than on grounded theory. Here one can cite the limited impact of 'solutions' such as the Postlethwaite system or the disillusionment experienced with the 'objectives model', both of which have been proposed at Fort Hare over the past five years. One might also cite the resistance to proposals for course design and development made by the Committee for University Teaching.
- (5) Although the introductory year concept developed by the University of Keele has had its inevitable difficulties, especially because students appear keen to specialise immediately on entering university, the advantages of enabling students the opportunity to come to share the broader aims of a university education in a less threatening context (assessment-wise) should be explored.

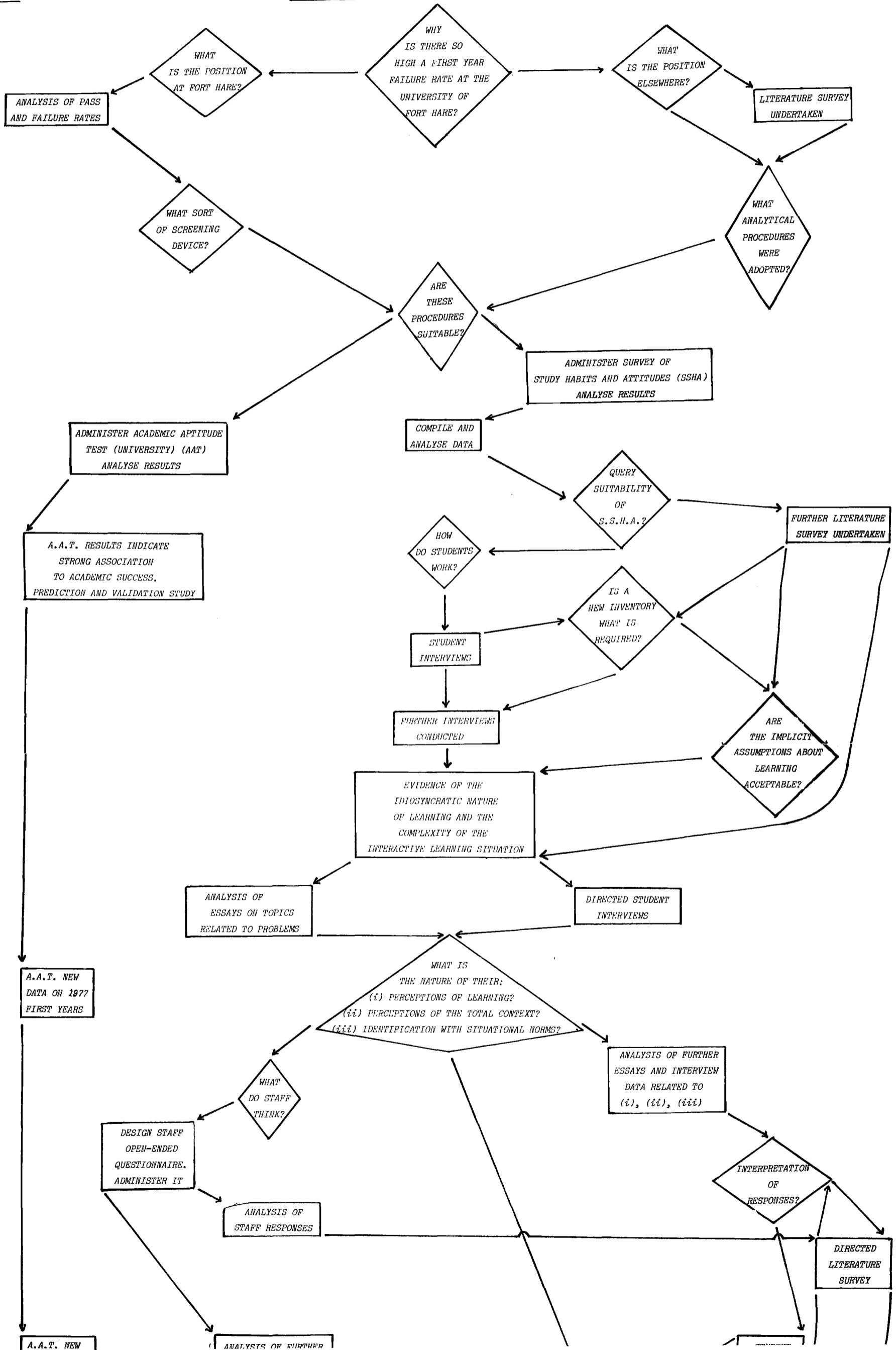
FLOW DIAGRAM

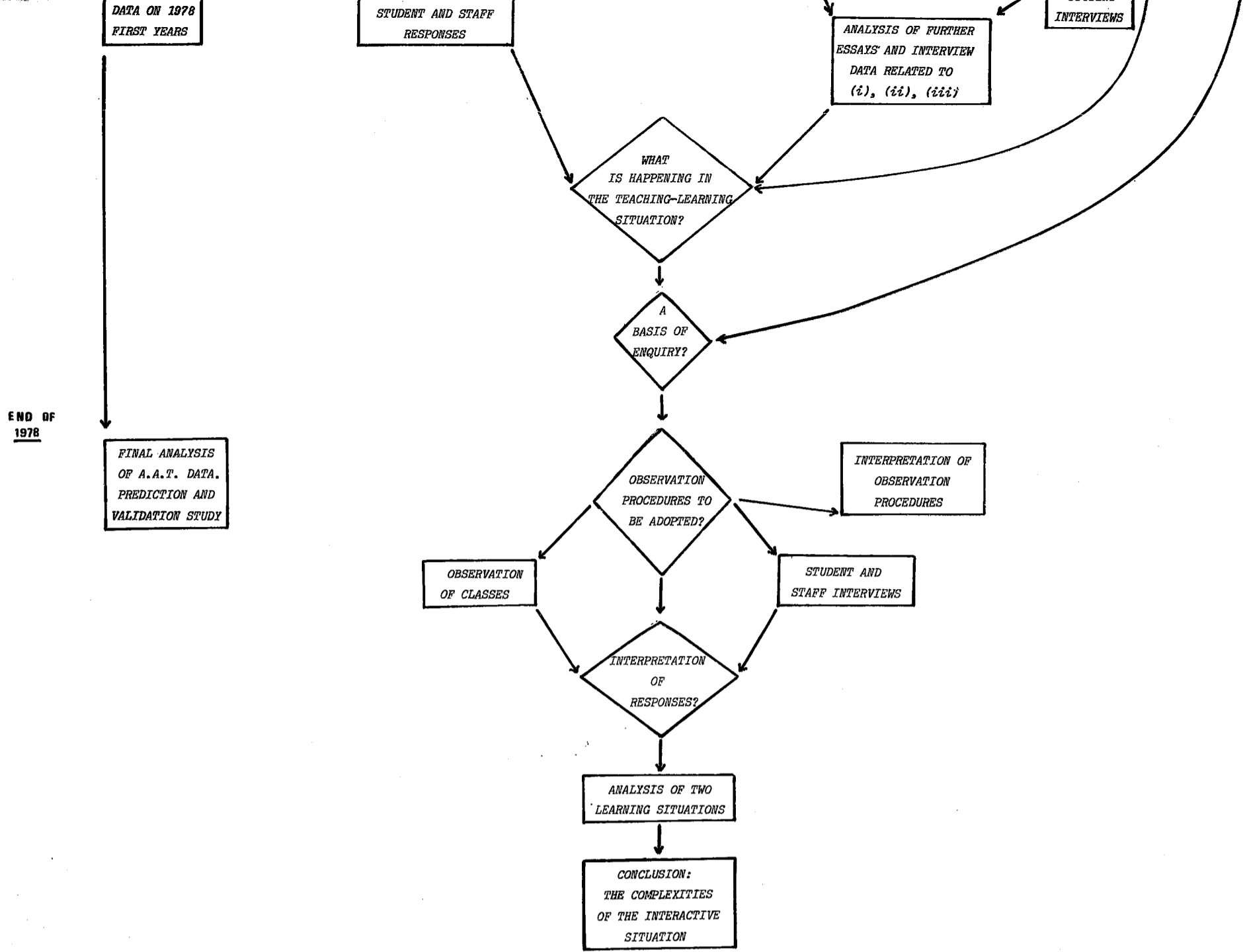
APPENDIX 1.1

END OF 1975

END OF 1976

END OF 1977





APPENDIX 4.1A. Here are some general questions about you:

Please place a tick (✓) in the appropriate box at the right of the page.

- | | |
|------------------------------------------------------------------|----------------------------------------------------------------------|
| 1. Are you MALE or FEMALE? | Male
Female |
| 2. What is your AGE? | 18-19 years
20-21 years
22-23 years
24-25 years
26 years |
| 3. What LANGUAGES can you speak? | Xhosa
Sotho
English
Afrikaans

Others |
| Please state which other language/s you can speak. | |
| 4. Did you father and/or mother and/or guardian attend school? | Yes
No
Do not know |
| If YES, about how many years of education did he or she receive? | |
| | 1-2 years
3-8 years
9-11 years
12-13 years |

5. What is the main OCCUPATION of your father or guardian?
Please state briefly:
- What is the main OCCUPATION of your mother or guardian?
Please state briefly:

B. Here are some questions about your plans and expectations for the future, especially as they relate to the career you hope to follow:

1. Listed below are some characteristics of a successful person. Would you please tick (✓) SIX characteristics which you think would make you successful:
- 01 Earning a high salary.
 - 02 Having many friends.
 - 03 Being respected in the area of the country from which you come.
 - 04 Being respected by the people with whom you work.
 - 05 Doing your job well.
 - 06 Being better at your job than almost anyone else.
 - 07 Adequately caring for and educating all your children.
 - 08 Being able to take care of your family, relatives and friends should they be in need.
 - 09 Being highly educated.
 - 10 Being able to influence the government.
 - 11 Contributing to the development of the country.

- 12 Being a member of a rich family.
 - 13 Seeking advancement whatever the cost.
 - 14 Knowing some influential people in the government.
 - 15 Belonging to a certain tribe or racial group.
Please state which:
 - 16 Other: Please state any other characteristics of a successful person which have not been listed above and which you think are important.
2. (a) Do you think your prospects of becoming a successful person are BETTER, WORSE or ABOUT THE SAME as others in South Africa with the same amount of education as yourself?
- 01 My prospects are BETTER than others.
 - 02 My prospects are ABOUT THE SAME as others.
 - 03 My prospects are WORSE than others.
- (b) Please state the REASONS why you think your prospects are better, worse or about the same as others:
3. Where do you think a student can obtain the best advice about what career to follow? Please tick (✓) TWO of the possibilities listed below:
- 01 From a fellow student.
 - 02 From one of your lecturers or teachers.
 - 03 From a recent university graduate who is now working in business of in the civil service.
 - 04 From the university administration.
 - 05 From newspapers or books.
 - 06 From parents or relatives.
 - 07 Somewhere else? Please state briefly:
4. Listed below are some of the things which you will probably consider when CHOOSING A JOB. Please tick (✓) THREE items which you think will be most important to you.
- 01 The salary you will receive.
 - 02 The area of the country where you would like to work.
 - 03 The security of the job.
 - 04 The chances of being promoted to higher posts.
 - 05 Whether the knowledge gained at the university can be applied to the job.
 - 06 The kind of people you will have to work with.
 - 07 The usefulness of the job to the development of the country.
 - 08 Whether the type of work involved interests you.
 - 09 The respect and prestige the job will give you.
 - 10 Any other: Please state briefly:
5. Do you think there will come a time in your working life when there will not be enough interesting jobs for people with a university degree? Please tick (✓) the ONE answer which best expresses your views.
- 01 No, such a time will not come. In a developing country there will always be a need for university trained manpower.
 - 02 The time may come, but it is in the distant future.
 - 03 The problem does not exist now but will arise in about ten years time.
 - 04 The problem is already arising.

6. Thinking about the future, especially within your expected career, how satisfied are you about the prospects for your advancement?

01 Very satisfied.
02 Fairly satisfied.
03 Dissatisfied.

Please state your reasons for feeling as you do about your prospects for advancement.

7. Given your educational background and what you hope to learn here at university, what job would you most like to obtain upon your graduation from university? Please state:

8. When you have finished your studies where would you like to live and work? Please state area or town.

9. Suppose that in one of your jobs you will be supervised by an experienced man with less formal education than yourself. Will you be unhappy with such a situation, and, if so, to what extent?

01 I will not be unhappy at all.
02 I will be somewhat unhappy.
03 I will be very unhappy.

Please state your reasons.

- C. In this section you are asked to think about your future career prospects. As future developments in the South African situation will affect your career prospects please answer as fully as possible the following questions.

1. There are many controversial issues in South Africa today. Please list those which you think need close and immediate attention.
2. Please suggest what you believe should be done to solve the problems you have listed above.
3. What changes do you see as most likely to take place in South Africa over the next five to ten years, or so? (These could be political, social and/or economic).
4. How do you feel your studies at Fort Hare are going to help you in the future? What do you hope for from a university education?

Thank you very much.

PLEASE COMPLETE

NAME

SUBJECT TAUGHT TO 1ST YEAR STUDENTS

FACULTY

DEPARTMENT

A. The following twenty factors were highlighted by students as influencing their academic performance. Please indicate by placing a cross in the appropriate block whether you believe the factor to be of major importance, minor importance or of no importance.

FACTORS INFLUENCING SATISFACTORY ACADEMIC PERFORMANCE OF FIRST YEAR STUDENTS IN YOUR CLASSES

		A major factor influencing performance	A minor factor influencing performance	An unimportant factor influencing performance
1. Level of preparation at school	1			
2. Regular class attendance	2			
3. Participation in class discussion	3			
4. The asking of questions in class	4			
5. Asking for help from lecturers when in difficulty with work	5			
6. The ability to analyse and synthesize factual material	6			
7. The ability to deal with abstract concepts and principles	7			
8. The ability to apply theory to practice	8			
9. The ability to read English effectively and efficiently	9			
10. Having effective and efficient study habits and skills	10			
11. The ability to express facts and ideas adequately in English	11			
12. The ability to make and take notes	12			
13. Submitting assignments and essays on time	13			
14. Working consistently and not leaving test/examination revision to the last moment	14			
15. Having a positive attitude towards course content	15			
16. Having a positive attitude towards the lecturer	16			
17. Having good examination and test techniques	17			
18. The ability to memorise factual material	18			
19. Choosing subjects for which the student has the necessary ability and interest	19			
20. Displaying an intrinsic and active interest in the course work	20			

B. Please state any other factors which you believe influence the academic performance of first year students in your subject/field indicating whether you think they are of major or minor importance.

C. Having indicated which factors you believe are MAJOR factors influencing academic performance, would you please RANK those you believe to be the five most important factors stated. (If you have listed any other factors of major importance you may include them in the ranking should you wish to.)

RANK	ITEM NUMBER
1	
2	
3	
4	
5	

APPENDIX 6.1

SURVEY OF STUDY HABITS AND ATTITUDES (Form H)

- 1 When I have an exceptional amount of homework or it is unusually difficult, I either give up or only do the easier parts.
- 2 In preparing reports, compositions and other written work, I make certain that I clearly understand what is wanted before I begin with the work.
- 3 I feel that teachers do not understand the needs and interests of students.
- 4 I neglect my schoolwork because I dislike certain teachers.
- 5 If I have to be absent from class, I make up for missed lessons without being reminded by the teacher.
- 6 I have difficulty saying what I want to say in tests, compositions and other work to be handed in.
- 7 My teachers make their subjects interesting and meaningful to me.
- 8 I believe that I would study harder if I were given more freedom to choose subjects that I like.
- 9 Day-dreaming distracts my attention from my work while I am studying.
- 10 My teachers criticise my written work for being poorly planned and hurriedly written.
- 11 I feel that teachers allow their like or dislike of pupils to influence their awarding of marks too much.
- 12 Even though I do not like a subject I still work hard to obtain good marks.
- 13 Even though an assignment is dull and boring I stick to it until it is completed.
- 14 I pay special attention to neatness of themes, reports and other work to be handed in.
- 15 I believe that the easiest way to get good marks is to agree with everything the teachers say.
- 16 I lose interest in my studies after the first few school days.
- 17 I keep all my work on each subject together and carefully arranged in some planned order.
- 18 I memorise spelling rules, definitions of words, grammar rules, etc. without really understanding them.
- 19 I think that teachers like to show who is boss too much.
- 20 I believe that teachers really want their pupils to like them.
- 21 When I have trouble with my school work, I try to talk it over with the teacher.
- 22 I hesitate to ask a teacher for further explanation of an assignment that is not clear to me.
- 23 I feel that teachers are too narrow-minded and set in their ways.

- 24 I feel that students are not given enough freedom in selecting their own topics for themes and reports.
- 25 I do not bother to correct errors on the papers my teachers have marked and returned to me.
- 26 I get nervous and confused when taking a test and fail to answer questions as well as I am capable of doing.
- 27 I think that teachers expect pupils to do too much studying after school.
- 28 Lack of interest in my school work makes it hard for me to keep my attention on my reading assignments.
- 29 My place of study after school is kept neat and businesslike.
- 30 I have trouble with spelling, grammar and punctuation while writing themes and compositions.
- 31 When explaining a subject or answering questions, my teachers use words that I do not understand.
- 32 Unless I really like a subject, I believe in doing only enough to pass.
- 33 Interruptions disturb my studies when I am studying at home.
- 34 When taking notes I tend to write down things which later turn out to be unimportant.
- 35 My teachers fail to give adequate explanations of the things they are trying to teach.
- 36 I feel confused and undecided as to what I want to study in school and what I want to do after leaving school.
- 37 It takes a long time before I really start working.
- 38 I do poorly in tests because I find it hard to think clearly and plan my work within a short period of time.
- 39 I feel that teachers are too strict and pretend to know everything when dealing with pupils.
- 40 Some of my school work is so uninteresting that I have to force myself to do the assignments.
- 41 I am unable to study well because I get restless, moody or get the blues.
- 42 I skip the figures, graphs and tables in a reading assignment.
- 43 I believe that teachers secretly enjoy giving their pupils a "hard time".
- 44 I believe that having a good time and getting one's full share of fun out of life is more important than studying.
- 45 I put off doing written assignments until the last minute.
- 46 After reading several pages of an assignment, I am unable to remember what I have just read.
- 47 I think that teachers tend to talk too much.
- 48 I believe that teachers tend to avoid discussing present-day problems and events with their classes.
- 49 When I sit down to study I find myself too tired, bored or sleepy to study well.
- 50 I find it hard to pick out the important points of a reading assignment - points that later appear in tests.

- 51 I feel that teachers try to give the same amount of attention to all their students.
- 52 I feel that my marks show more or less what I really can do.
- 53 I believe that my studies are harmed because I waste too much time talking, listening to the radio, going to bioscopes, etc.
- 54 When in doubt about the proper form of a written task, I find a model or guide to follow.
- 55 The illustrations, examples and explanations given by my teachers are dull and hard to understand.
- 56 I feel that a college or university education is not worth the time, money and effort spent on it.
- 57 I do my homework in an easy-going, unplanned manner.
- 58 When reading a long assignment, I stop now and then to try to remember what I have read.
- 59 I feel that teachers tend to look down upon their poorer students and make fun of their mistakes.
- 60 Some of my classes are so boring that I spend the period drawing pictures, writing notes or day-dreaming instead of listening to the teachers.
- 61 I get behind in my school work because I have too many other things to do.
- 62 I seem to get very little done for the amount of time I spend studying.
- 63 I feel that teachers make the work too difficult for the average pupil.
- 64 I feel that I am taking subjects that will be of little use to me.
- 65 I try to do as much work as possible in school so as to reduce my homework.
- 66 I can study a reading assignment for only a short while before the words stop making sense.
- 67 I think that sports coaches do more important work at school than subject-masters.
- 68 I believe that the most important task of the school is to teach pupils things that will help them to earn a living.
- 69 Problems outside the school - with other pupils or at home - cause me to neglect my homework.
- 70 I copy the diagrams, drawings, tables and other illustrations that the teacher puts on the blackboard.
- 71 I feel that teachers show more interest in high marks than in the real purpose of education.
- 72 I try to become really interested in every subject I take.
- 73 I complete my homework on time.
- 74 I lose marks in tests because I change my first answer only to discover I was right the first time.
- 75 I think that students who ask questions and take part in class discussions are only trying to get into the teachers' good books.

- 76 I feel that the main reason for going to college or university is to be admired and envied by others.
- 77 I like to have a radio or record played on while I am studying.
- 78 When preparing for a test I arrange the facts to be learned in some planned order - order of importance, order in which taught, order of time in history, etc.
- 79 I believe that teachers deliberately give tests on the day after a party or sports-meeting.
- 80 I believe that having a winning team in sports is just as important as learning history or mathematics.
- 81 With me studying is a matter of hit-or-miss, depending on the mood I am in.
- 82 I am careless about spelling, punctuation and grammar when answering test questions.
- 83 I believe one way to get good marks is by using flattery on your teachers.
- 84 I believe it might be best for me to leave school and get a job.
- 85 Every day I study an extra hour after doing my usual homework.
- 86 Although I work until the last possible minute I am unable to finish tests within the time allowed.
- 87 I feel that it is almost impossible for the average pupil to do all his assigned homework.
- 88 I feel that things taught in school do not help one to meet adult problems.
- 89 I keep my assignments up to date by doing my work regularly from day to day.
- 90 If there is time I take a few minutes to check my answers before handing in my test paper.
- 91 I feel the main reason why pupils cheat is because of the ridiculous assignments which teachers give them.
- 92 Too much reading or studying gives me a headache.
- 93 I prefer to study and work alone rather than with others.
- 94 When tests are returned I find that I have lost marks because of careless mistakes.
- 95 I feel that pupils cannot be expected to like most teachers.
- 96 I feel like skipping school whenever there is something else I'd rather do.
- 97 At the beginning of a study period I plan my work so that I will make best use of my time.
- 98 During tests I forget names, dates, formulas and other details that I really do know.
- 99 I believe that teachers go into teaching mainly because they enjoy it.
- 100 I believe that pupils who can memorise facts score higher marks than those who can "think" things out.

APPENDIX 6.2

UNIVERSITY OF FORT HARE

PRIVATE LAW I STUDENTS

- 1 Do some of your lecturers give you typed notes?
- 2 If they do, what are you expected to do with them?
How are you expected to use them in your studies?
- 3 If a lecturer gives you typed notes what do you do during his lecture periods?
- 4 What do you see is the relevance, if any, of the present work Mr ... is doing?
- 5 Why do you think Mr ... has decided not to give you typed notes?
- 6 What does Mr ... expect you to do during his lecture periods and afterwards?
- 7 Where are you going to get your notes from for Private Law I?
- 8 Why do you need notes?
- 9 What difficulties have you experienced so far in the course?
Please explain as fully as possible.

APPENDIX 6.3

UNIVERSITY OF FORT HARE

FIRST YEAR PHYSICS STUDENTS

1 In general, have you found the problems set in each of the practicals difficult or easy?

- Very difficult
- Fairly difficult
- Fairly easy
- Very easy

PLEASE TICK ONE

2 What are your reasons for ticking the answer you have?

3 What do you do when you get into difficulties with a problem in your practicals?

- Look at the instruction sheet and try to follow the method outlined?
- Talk over the problem with another student?
- Leave it and go onto something else?
- Ask for help from one of the demonstrators or Mr ...?
- Read and read the example provided?
- Try to get your reading to coincide with those given in the example in your notes?

Please tick any that apply to you. Give details below of anything else you do when you experience difficulties.

4 In your opinion what are the characteristics of a good experiment?

5 What do you see is the relevance of the practical work you have done so far?

6 Please comment on the extent to which you find the work covered in your physics lectures is helping you, if at all, in your practicals, and vice versa, how much, if at all, your work in the practicals is helping you to understand what is being taught you in your lectures.

7 What previous experience have you had in doing some of the things expected of you in your physics practicals? Please outline fully.

8 What difficulties have you experienced so far in the practicals? Please explain as fully as possible especially concerning what help you feel you most need, if any.

9 Please tell me how you would like to see the physics practical course changed or improved if at all.

- 10 (a) What have you enjoyed doing most in your physics practicals, so far?
- (b) What have you disliked having to do in your physics practicals, so far?

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