EDUCATIONAL ORIENTATIONS OF STUDENTS : A COMPARATIVE STUDY OF STUDENTS IN THE ENGINEERING AND SOCIAL SCIENCES.

A Dissertation submitted to the Jawaharlal Nehru University
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D E C L A R A T I O N

Certified that the dissertation entitled "Educational Orientations of Students : A Comparative Study of Students in the Engineering and Social Sciences" submitted by Gayathri H.R. is in fulfilment of eight credits for the Degree of Master of Philosophy of this University. This dissertation has not been previously submitted for any other Degree of this University or any other University and is her own work.

We recommend that the dissertation may be placed before the examiners for evaluation.

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A C K N O W L E D G E M E N T

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ABSTRACT

The rapid expansion of Universities and the consequent enrolment in them has resulted in the existence of an increasingly heterogenous student population. It has also given rise to an impersonal college education with the main emphasis on the possession of a degree.

All this has led to an increase in student restlessness throughout the country. With this in view, the interests and learning orientations of the students, their attitudes toward curricular/instructional policies and the factors that contribute to the stability or shift in these orientations would take on a great importance.

The objective of the present study was to identify the patterns of Educational Orientations held by students in different curricula and especially that of students in technical, Engineering education and general, social science education. An attempt was also made to see whether these orientations affect Students' Academic performance of their Academic self concept.

The 4th and 5th year B. Tech. students of IIT, Delhi and the 1st and 2nd year M.A. students from the School of Social Sciences, Jawaharlal Nehru University, Delhi served as samples in this exploratory study.

The Students Orientation Survey (SOS), developed by Morstain (1973) was used to study the Educational orientations of the students in the Engineering and Social Science curricula. An adaptation of Brookover's self concept of ability scale (1964) was used to study the Acadmic self concept. Cattells culture fair test (1949) was used to measure the ability of students in both curricula. (This test was used as a control for the cognitive factor ability).

It was hypothesized, based on extensive studies by Feldman and Newcomb (1969), Morstain (1973) and others, that students coming from different curricula would have significantly different patterns of Educational orientations. Morstain's (1973) inventory (SOS) to measure educational attitudes was found to differentiate these patterns for students in American Universities.

When used in the present investigation, the SOS did not differentiate patterns of orientations between the Engineering and Social science students. But within the groups, the students from the different curricula did seem to have trends conforming to to Morstain's (1973) findings, that students coming from the Social science curricula have an exploratory orientation toward college education. These trends, however, were not significant and need to be verified.

It was interesting to note that significant relationships did exist between Academic self concept and Academic Achievement for both the Engineering and Social science groups.

The other findings indicate that, for this sample, the Educational orientations held by students do not seem to influence a mediate the relationship between Academic self concept and Academic Achievement.

The results, on the whole, indicated that particular trends in Educational orientations do exist for students in different curricula, but these orientations are influenced by the home/background environmental factors and the sub-cultures within the college environment.

An attempt will be made to identify these background factors that influence the formation of educational orientations of students at the next stage.

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CHAPTER - I

INTRODUCTION

Higher Education in India

Since independence, the educational policy has aimed chiefly at making education available to as many as can be accomodated. The number of universities has increased from 20 in 1947 to 70 in 1968 and total enrolment had gone up from 1,96,158 in 1946-47 to 12,00,000 in 1965-66, in the arts and sciences, and from 44,000 in 1946-47 to 3,00,000 in 1965-66 in the professional colleges (Report of the Education Commission, 1965). The Commission has also reported that Graduate education will maintain a minimum growth rate of about 11 per cent between 1967-1985.

Till today, the selection of jobs continues to be made on the basis of the possession or non-possession of university degrees. A college education has become important because of the degree it brings, beyond which it contributes little that students' can value in terms of their future career. Students realise the irrelevance of the content of their education and there is dissatisfaction for the college routine.

Some Problems faced by Indian Universities

Asthana and Chitnis (1965) in their essay on the

'Disturbed campus', have mentioned that the principal causes of disaffection for the educational system among students are those of absence or lack of close teacher-student relationship due to expansion of institutions, poorly integrated policies, increased activity of students seeking office in unions etc. Parker et al. (1977) in their analysis of student unrest have said that 38.1 per cent of the Indian student protest was concerned with educational issues regarding policies and decisions made within the institution by the faculty and administration, examination systems and language and 14.1 per cent of the protests stemmed from issues of social concern.

Also in India, the institution of higher learning are highly politicised. The lecture-examination method of instruction, as it is presently functioning, is generally inadequate for the transfer of knowledge and is often viewed as impersonal by the students. The curriculum is very rigid and the students, particularly with arts degrees find it hard to obtain suitable work. The irrelevance of education to occupation applies more to non-professional and non-technical students, because much of what the technical student learns is directly useful to his occupation. The education the technical student undergoes may be inadequate, but it is seldom irrelevant. Academic interest would perhaps compensate for the poor relationship between training and

occupation in non-technical courses and make the college routine more meaningful.

Apart from the various drawbacks concerning the academic programmes and policies of university education, the rapid expansion of the system has also led to the existence of a heterogeneous student population. Especially in India, where the socio-economic conditions are vastly varied, and students from a variety of backgrounds enter such institutions, the background and personality characteristics of the students themselves cannot be ignored. These personality characteristics of the students have as great an impact on the effective academic performance of the individual as his attitudes towards education do.

In the context of today's higher education, a knowledge of the attitudes held by students towards various curricular instructional policies and practices will be of great use, both in giving guidance and counselling to students regarding appropriate courses and in maximising the effectiveness of the opportunities provided to them.

The present study is being conducted to identify the patterns of educational orientations held by students in different curricula and the effect this has on their performance.

SOME FACTORS AFFECTING ACADEMIC ACHIEVEMENT

Whether it is to counsel youngsters with a choice in careers or to select a prospective candidate for a job, to evaluate the academic progress of a student at all levels of education, or to predict future success, the most useful predictor of the educational potential of a person is his academic achievement.

There have been many studies to find out the factors that affect students' academic achievement. These have varied from the effects of background variables on achievement to those emphasizing both cognitive and non-cognitive factors as important determinants of achievement.

The following factors are being investigaged in this study.

Educational Orientations

Studies done by Peterson (1965), Pace (1963), Stern (1970), Pervin et al. (1967) have all indicated that student perceptions of the college environment are an important factor in the adjustment of students in college. Astin (1970), in his study mentions that a knowledge of personal characteristics of students increases the ability to predict academic achievement. Based on these studies, Morstain (1973) has emphasised the role of student educational

orientations as being one of the important factors affecting performance. These educational orientation involve a consideration of the implications of curricular-instructional situations as perceived by the students in an institution, and these perceptions will in turn affect their adjustment and performance in the college situation.

Academic Self Concept

Among the non-cognitive factors which influence student performance, studies by Lecky (1945), Coopersmith (1968), Brookover (1964), Singh (1970) and others have shown that self concept is one of the other important motivational factors. Meyer (1975) and Marston (1968) have mentioned that the enhancement of a students self concept through proper guidance and counselling enables one to achieve the maximum out of his potentialities.

Performance of Students in Different Fields of Specialisation

Feldman and Newcomb (1969) have reviewed a number of research studies over the last decade. These have in most cases determined the general characteristics and attitudes of students (Peterson, 1965; Heist and Yonge, 1968 etc.). Only recently Morstain et al. (1973) emphasised the importance of dealing directly with students' attitudes regarding educational processes and policies. Morstain also spoke of

differentiating students in different educational settings with the help of their educational orientations.

This far, no studies have been conducted regarding the influence of students' educational attitudes on their performance. In the context of today's higher education, a knowledge of the attitudes held by students towards various curricular instructional policies of practice will be of great use in giving guidance and counselling to students regarding appropriate courses and in maximising the effectiveness of the opportunities provided to them.

The present study is being conducted to identify the patterns of educational orientations held by students in different curricula and the effect this has on their achievement.

At present this study is being restricted to the identification of the patterns of students educational orientations in the curricula of Engineering and Social Sciences and to see whether these orientations have an effect on student self concept and academic achievement.

The data is being collected only from the I.I.T., Delhi (Engineering) and Jawaharlal Nehru University, Delhi (Social Sciences). At the next phase, an attempt will be made to identify in detail the demographic and personality

variables which influence the educational orientations of students. An attempt will also be made to study faculty educational orientations with a view to match student and faculty on the basis of educational performances.

CHAPTER - II

THEORETICAL BACKGROUND AND A REVIEW OF RESEARCH

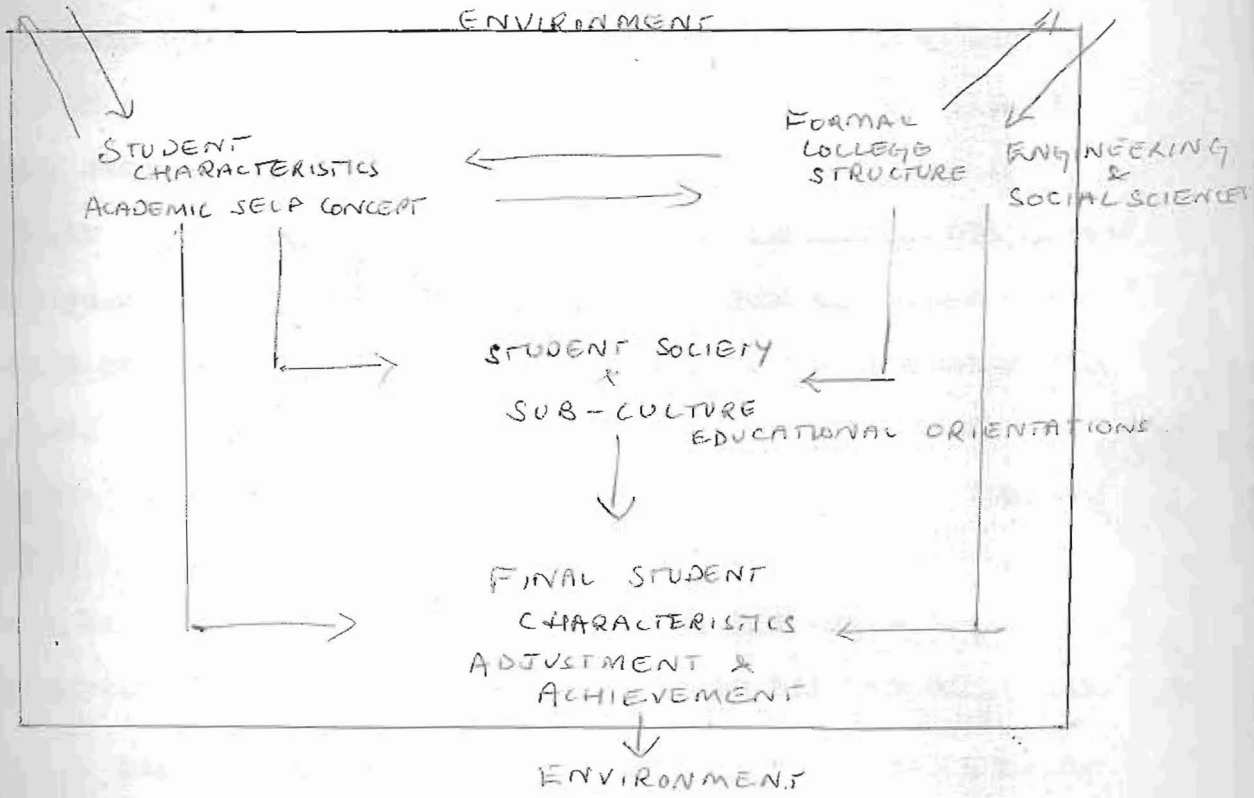
PART-I - THEORETICAL BACKGROUND

The Formal College Structure

Sanford (1962) describes a college for university as "a complex organisation of social structures and processes, in varying degrees separated from the larger society with which it interacts, into which students of great diversity and internal complexity enter, to be developed in such a way that they will possess qualities that are desired by those who support and operate the organisation".

The major activities of the college are usually carried forward in accordance with some educational goal or philosophy as to how students are to be changed. The goals of the college, translated into a set of role expectations for students specify the type and direction of the desired change, and in this manner, influence and control the outcome of the educational process. The way students develop and change depends heavily upon these elements - the role expectations of the institution and the personality dispositions of the individual.

Hochbaum (1968) has developed a model of the structure and processes of institutions of higher education within their social environment. This model describes the parts of the college social structure relevant to the educational process and also indicates the mutual interdependence of these parts. Based on this model, the interaction between the variables used in this study can be explained.



Role Expectations of the Institution

Within an institution, there are certain roles and expectations that fulfil the goals of the system. These role expectations are derived at least in part from the values of the culture in which the institution is situated.

Educational institutions, along with the essential functions of transmitting knowledge about and generating commitment to participation in society, also become specialised in their aim. Some will accent the acquisition of specialised educational skills and training and others provide a liberal education.

In addition to the specific content of the institutional goal, the educational impact of the college depends upon the consensus the goal elicits among the staff and students. Chickering (1969), Hochbaum (1968) and others emphasized that the roles students play in their own education are a major factor in the developmental process during college. White (1952) has explained the same aspect in his conception of a 'sense of competance'. This, White (1952) says, can be viewed as a goal of education, that is, helping a student develop the feeling that he can have an effect on his environment, or that he can have some say as to the nature of his academic experience, by taking an active role in his own education.

Disparities between the organisational role demands and the role conception and performance of both teachers and students minimizes the influence of the special goals of a college.

Despite any consensus achieved through inter-personal and work socialization, and the explicit and authoritative

goal structure, students and faculty sub-cultures rooted in sources inside and outside the college, emerge and intervene between the structurally given role demands and effective role performance. The crucial factor here is the orientations held by the individual towards their work and responsibilities.

Educational Orientations

Based on this role orientation perspective Morstain (1973) emphasises the importance of students' attitudes regarding educational process and policies as a major factor influencing the developmental process during college. Individuals in the institutions hold different conceptions of their duties and roles which ultimately shape their performance.

Morstain and Gray (1973) indicated two general areas and several dimensions under each area in which students might be expected to differ in their views and attitudes. These two areas they termed as general preparatory and exploratory orientations. Students with a preparatory orientation were those who valued college most highly in terms of its preparatory function - of acquiring useful knowledge skills, vocations and social roles, while students who valued college for its exploratory possibilities, for the opportunities it afforded for exploring one's interests, ideas and personal identity were classified under those having an exploratory orientation.

Under these two general areas, Morstain and Gray (1973) also assumed five major dimensions along which students were expected to differ. These were -

1. Purpose (attitudes regarding the purpose(s) of college or university education).
2. Process (preferences for different teaching/learning modes).
3. Power (attitudes regarding decision making and student/faculty roles).
4. Peer relations (preferences for different modes of association with peers).
5. Public position (attitudes towards the community/society and student roles).

In addition to these orientations, the individual role conception and performance will also be affected by their role dispositions which are rooted in their backgrounds, personal characteristics and social situation.

Personality Dispositions of the Individuals

Colleges have different objectives and standards with which they select students. But their selection is not always successful in terms of proper fit between institutional goals and individual personality characteristics. This was because the criteria for predicting

academic performance had so far included only prior performance and scholastic aptitude. Little consideration was given to other relevant factors of readiness, motivation and potential for personality development (Fishman and Pasanella, 1960).

In a review of research Fishman and Pasanella (1960) have indicated the importance of non-intellective criteria such as over and under achievement, motivation and personality and motivational ratings by self and others on academic performance and adjustment.

One important characteristic which affects student performance is self concept.

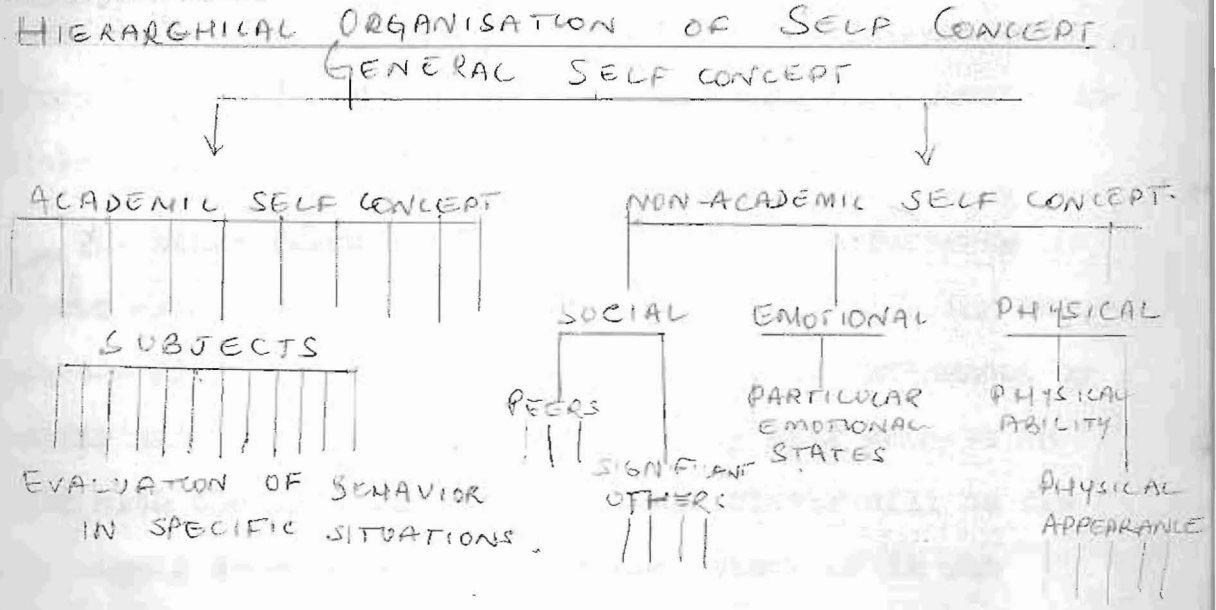
Self Concept

Snygg and Combs (1949) have emphasized the importance of self perception as a factor in determining the capacity to learn any type of behaviour. Lecky (1945) was one of the earliest workers who suggested that scholastic performance tended to be consistent with individual self assessment.

In very broad terms, self concept is a person's perception of himself. These perceptions are formed through his experience with his environment and are especially influenced by environmental reinforcement and significant others. This construct is potentially important in predicting performance.

The various definitions of self concept (Combs and Soper 1957; Coopersmith 1967; Jersild, 1952; Rogers, 1954; Snygg and Combs, 1949; Brookover et al. (1964) vary from dimensions such as (a) emphasis on a stable or changing self concept, (b) situational, phenomenal or internal determinants of self concept and (c) uni or multi dimensionality of self structure.

Shavelson, Hubner and Stanton (1976) have developed a definition of self concept from the existing definitions in order to provide a framework for the various studies on self concept. They identify seven features as being critical for a construct definition of self concept. Self concept is described as organized, multifaceted, hierarchical, stable, developmental, evaluative and differentiable.



Super (1963) and Brookover et al. (1965) have emphasised the hierarchical nature of self concept. Facets of self concept are seen to form a hierarchy from individual experiences in particular situations at the base to a general self concept at the apex. This general self concept is stable, but at the base of the hierarchy, self concept varies greatly with variation in situation (Ludwig, Macher 1967).

Another important feature of self concept is its evaluative character. Not only does an individual develop a description of himself in a particular situation, he also forms an evaluation of himself in these situations (Shavelson et al. 1976). These evaluations are made against absolute standards such as 'ideal', or against relative standards such as 'peers' or perceived evaluations of 'significant others'. The importance of these evaluations depends upon the individuals past experience in a particular culture, society etc.

The other feature related to academic performance has been shown by Brookover and Thomas (1965) as being the feature - differentiability. Self concept is influenced by specific experiences, so the more closely self concept is linked with the specific situation, the closer will be the relationship between self concept and behaviour in the situation. In this way, an academic self concept is more

likely to be a better predictor of performance in college than non-academic self concept.

Fields of Study and People in Them

A number of studies have been conducted to assess the effect of environments of a college or institution on its student body (Pace and Stern 1958, Astin and Holland 1961). These studies emphasize the influence of the environment on students and classify students' reaction to the environment into various personality types.

In a study of changes in self ratings among students in various institutions, Skager, Holland and Braskemp (1966) reported that students majoring in agriculture and engineering developed a relatively lower estimate of their own popularity than students elsewhere. Astin (1962) said that students develop relatively lower estimates of their own scholastic ability at colleges with high enrolment, selective admission policy and many students majoring in practical and technical fields. Skager et al. (1966) said that students show more interest in the goal of prominence in public affairs when their peers major in the arts, literature and language.

Some studies have been conducted (Stern, 1963; Feldman and Newcomb, 1969) and the differences in major

field environments in terms of students' description of the characteristic emphases, demands and opportunities associated with curriculum and faculty have been described.

Natural science and engineering students tended to describe their curricular environments as high in faculty and student emphasis on 'Scienticism' and low on 'humanism'.

Feldman and Newcomb (1969) have noted that students in Engineering, physical sciences and mathematics score high on tests measuring general intellectual ability as opposed to students in other fields. On scales measuring psychological well-being, students in the natural sciences tended to score higher than students in the social sciences.

All these studies indicate that people who enter certain fields may have certain distinctive personality characteristics.

Morstain (1973) while working on students educational orientation studies has indicated that students in different curricula show distinct educational orientation patterns. Students in the social sciences and humanities had relatively lower mean scores on all preparatory scales. They showed more interest in having a participatory role with faculty in

educational decision making and tended to view learning as its own reward, while students in the professional curricula expressed a desire for a more structured educational atmosphere.

Thus, the increase in enrolment of universities has led to a vast and heterogeneous student population. The educational orientations of students plays a very crucial role in the development and adjustment of students as indicated by Morstain (1973). The identification of the patterns of educational orientation of the engineering and social science students and its effect on their performance will be of use in giving educational guidance and counselling so as to maximise the effectiveness of the education provided to students.

PART-II - A REVIEW OF LITERATURE

FACTORS RELATED TO ACADEMIC ACHIEVEMENT AND DEVELOPMENT OF THE HYPOTHESES

Extensive studies have shown that academic achievement is a function of more than just intellective capacity. The non-intellective factors have been emphasized as being as important as intellectual capacity (Miller, 1970; Fishman, 1962).

Coleman et al. (1968) pointed out that a students' achievement is related to various factors in his educational

environment and the personality disposition he holds, as well as other factors ordinarily related to achievement. These are the background factors, his own motivation (Sanford 1962), self concept, interest and attitudes that support education etc.

Pace and Stern (1958) mention the individuals intellectual and motivational qualities, along with the influence of the educational environment to which the student is exposed, as being important variables influencing intellectual achievement.

Brown (1960) has emphasized the importance of antecedent conditions such as family structures, socio-economic status, abilities, motives, attitudes values and personality traits in affecting student performance.

Mc Lonnel and Heist (1959) have pointed out that the 'output' of colleges, i.e., their production of scientists and scholars, is a function of student input - in other words, as Hochbaum (1968) mentions student characteristics collectively are important determinants of productivity.

In the following discussion, the area covered will be limited to a discussion of the educational orientation held by students, and their academic self concept (both of which are influenced by antecedent condition as well as environmental influences) and the effect of these variables

on student performance.

STUDIES RELATED TO SELF CONCEPT AND ACADEMIC ACHIEVEMENT

Suygg and Combs (1948) were among the first to emphasise the importance of self perception as a factor in determining the capacity to learn any type of behaviour. Lecky (1945) was one of the earlier workers who suggested that scholastic performance tended to be consistent with the individuals self assessment.

Similarly Stevens (1956) found a positive relationship between self image and academic achievement for a sample of bright college students. High achievers also exhibited a greater insight regarding intellectual ability and had greater self acceptance and more positive attitudes towards themselves.

White (1963) reported that academic achievement is in general harmony with the concept of self and lack of confidence seems to take away ones can-ness. Coopersmith, Beandslee and Lowrey (1968) reported that students with a higher degree of self esteem tend to be successful both academicadly and socially.

Ramkumar (1969) and Sharma (1968) also report a positive correlation between self concept of achievement and say that an integrated self concept acts as a motivational force in maintaining mental-health and

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influencing the learning situation.

All these studies have reported the importance of self concept as a determinant of individual performance and adjustment.

STUDIES RELATED TO ACADEMIC SELF CONCEPT AND ACADEMIC ACHIEVEMENT

'Academic self concept refers to behaviour in which one indicates to himself (publicly or privately) his ability to achieve in academic tasks as compared with others engaged in the same task'. (Brookover, Paterson, Thomas, 1964).

Shavelson et al. (1970) indicated that academic self concept can be characterised as one of the many concepts of self, hierarchical in nature, dependent on a particular role, area of experience, situations, time etc., relatively stable under stimulus situations and evaluative (i.e. influenced by past experience, and significant others and primarily differentiable in nature).

Brookover et al. (1964) indicate that this aspect of self concept is what makes prediction of performances more accurate. Brookover et al. (1964) also reported a significant and positive relationship between academic self concept and achievement. High achieving groups had a significantly higher mean academic self concept when compared to low achieving groups with comparable intelligence.

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In another study, Cohen (1974) reported that students choice of curricula and performance in them was associated with a high self concept of ability.

These studies indicate the usefulness of academic self concept as a powerful predictor of performance.

STUDIES RELATED TO PERSONALITY, COLLEGE ENVIRONMENT AND ACADEMIC ACHIEVEMENT

Mc Arthur (1960), in his study found that social variables mediated through the individual in the form of role behaviour toward and within the institution-influences academic achievement. He found that public school training produced students capable of higher achievement with an orientation toward the sciences, whereas privately prepared boys were more of underachievers with an orientation towards the humanities and arts.

Pace and Stern (1958), Sanford (1959) and others have emphasised the dynamic interaction between the personality structures and the culture of the various colleges in producing high achievement.

Pace and Stern (1958) in their study found that achievement was facilitated by interaction between student and faculty. They alsofound that colleges that are more productive in the social science and humanities are characterised in student perceptions as having a flexible curriculum and an informal faculty.

Thistlethwaite (1960) found after an examination of students attitudes, interests and peer-group norms as related to achievement, that scientific and humanistic scholars thrive in different types of environments. Student cultures characterized by humanism, breadth of interests and reflectiveness are conducive to humanistic interests of achievement, while participation of aggression interfere with such achievement. Natural sciences achievement is typical of student cultures high in aggression and is inhibited by those that stress serial conformity.

Summerskill (1962) points out that academic performance in college is influenced by various demographic, social and motivational factors. Factors such as scholastic aptitude, demographic factors have been studied in detail in an effort to explain student attrition. But college students are growing, striving, thinking individuals and an attempt into the investigation of what really motivates the successful college student will not come amiss.

The following section discusses a study of students' educational orientations towards the purpose and process of college education which may provide a better picture in our understanding of personal predispositions which influence performance.

STUDIES RELATED TO PERSONALITY, EDUCATIONAL ORIENTATIONS AND ACADEMIC ACHIEVEMENT

Chickering (1969) has said that the impact of an experience depends upon the characteristics of the person who encounters it. The impact of a class, course or curriculum, peer or college substructure varies with the background, attitudes and personality characteristics of students.

Everett (1971) has reported that high achievers perceived themselves as being non-confirmists who participated in achievement-related endeavours (private study) and viewed examinations in a context of competition and ambition.

Morstain (1977) has given evidence of the influence of student attitudes on performance. His examination of students satisfaction with their academic programme revealed that students who were dissatisfied were characterised by a disaffection for a formal, structured learning programme and preferred independent study programmes, as opposed to those who confirmed to it and were satisfied.

Stark (1975) found that student who withdrew from college were more concerned with the process of education (preferences for different modes of learning) and faculty student relationship than students who continued.

Pemberton (1974) found that students with different scholastic aptitudes had different educational orientations. Her findings supported the personality characteristics research reported by Himelweit (1945) and others in which individuals in a high verbal ability group appeared to be more inwardly directed and individuals in a high mathematical group were more pragmatic in their general orientation. Pemberton's (1974) findings showed that students with high verbal ability were more interested in the exploration of ideas whereas students with high math scores were interested in college as a means of acquiring useful knowledge and skills.

Other studies by Morstain 1971 (a), 1971 (b), have shown that students with different personality characteristics have different educational orientations. These can be broadly defined as a preparatory orientation and exploratory orientation toward college education. Morstain (1971) also noted that students in different academic specialisations held distinctly different orientations toward college education.

STUDIES RELATED TO EDUCATIONAL ORIENTATIONS AND FIELDS OF SPECIALIZATION

Morstain 1973 (b) has shown that undergraduates at dissimilar institutions show noticeable variation in educational orientation profiles. This was to be expected as colleges and universities differ greatly in terms of size,

mission, admission criteria and ethos. Variations were also noticed within institutions.

Students in the social sciences and humanities had relatively lower scores on all preparatory scales than students in the professional curricula (Morstain, 1973 (b)). Humanities and social science majors expressed relatively more interest in having a participatory role in decision making, had more desire in developing learning contracts and desired unstructured, spontaneous peer relations. Students in the professional curricula showed orientations exactly opposite to those held by students in the social sciences curricula.

Heist and Bilousky (1971) and Suzcek and Alfert (1970) had indicated that students who self select themselves into experimental programmes have substantially different characteristics and personality orientations from those of their peers in a traditional curriculum. Morstain (1973) also found that students who participated in the experimental programmes scored higher on the exploratory scales than their peers in the traditional curriculum. These students also showed significant changes in SOS scale scores congruent with the goals and objectives of the programme while changes for the students in the traditional curriculum was less noticeable.

The above mentioned studies give some indication of the importance of educational orientations held by students

on their satisfaction and adjustment towards the college process.

Hochbaum (1968) has emphasized that the students adjustment to the college environment, ultimately related to his social and personal characteristics, is a significant intervening variable between his intellectual capacity and academic achievement. The existing literature describes the development, use and efficacy of prediction based on aptitude tests and high school performance for those most likely to succeed academically in college (Fishman, 1962). These studies fail to link the student characteristics with the college experience directly. The educational orientations of students can therefore be used as an important variable predicting performance.

No study seems to have been reported so far on the effect of Educational Orientation on academic self concept of students and their academic achievement.

OPERATIONALISATION OF THE VARIABLES

Academic Achievement

'Academic Achievement' is the criterion variable in this study. This has been defined as the grade-point average obtained by the students.

Educational Orientation

Horstain and Gray (1973) have explained this variable

as an 'assessment of college students expressed attitudes regarding curricular - institutional policies, their views on preferred modes of learning, student-faculty roles and decision making, preferences for different modes of association with peers and attitudes toward the community/ society and student roles.

Academic Self Concept

Students internalise the expectations that they perceive significant others hold for them and their academic performance is affected by the conception of appropriate behaviour thus acquired. This conception is mainly the students conception of themselves as learners. (Brookover et al. 1965). Brookover (1964) defines academic self concept as 'behaviour in which one indicates to himself (publicly or privately) his ability to achieve in academic tasks as compared with others engaged in the same task'.

Ability

As conceptualised by Cattell (1940), intelligence consists of two abilities, crystalised and fluid. The construct being measured here is the fluid ability which is an innate potential capacity for reasoning and is not influenced by cultural or other environmental effects.

This variable is being used as a control variable only in this study, so as to test for the true relationship

between self concept and educational orientation with performance. Innate intelligence has long since been established as one of the important factors affecting achievement (Cattel and Butchell 1968, Barton et al. 1971, 1972), Mandal et al. (1972) etc. By controlling this variable it is expected that the true relationships between the other variables studies and achievement will show up.

DEVELOPMENT OF HYPOTHESIS

The following hypothesis have been formulated on the basis of the above discussions :

1. Students enrolling in different curricula have noticeably different Educational Orientations.
   (a) Students in the Engineering curricula have a predominantly preparatory orientation.
   (b) Students in the Social Science curricula have a predominantly exploratory orientation.
2. There is a significant relationship between academic self concept and academic achievement.
3. The degree of relationship between academic self concept and academic achievement is related to the educational orientations of students.

Corollory Hypothesis

(a) Social Science students with an exploratory orientation show greater positive relationship between academic self concept and academic achievement.

(b) Social science students with a preparatory orientation show less positive relationship between academic self concept and academic achievement.

(c) Engineering students with an exploratory orientation show less positive relationship between academic self concept and academic achievement.

(d) Engineering students with a preparatory orientation show more positive relationship between academic self concept and academic achievement.

CHAPTER - III

DATA COLLECTION AND ANALYSIS

This chapter discusses the description and mode of administration of the instruments used for data collection in this study.

Instruments

1. Educational Orientation - The attitudes held by the students towards the purpose and process of college education was identified by Morstain's (1973) Student Orientation Survey.

2. Academic Self Concept - An adaptation of Brookover's (1965) self concept of ability scale was used as a measure of this construct.

3. Academic Achievement - As a measure of academic achievement, the grade point averages were taken from the official records of the institutions under study.

   The semester grade point averages (SGPA) at the end of the semester was taken into account.

4. Ability - This variable was used as a control measure only. Cattell's (1940) Culture Fair intelligence scales 3A and 3B were used to get a measure of the academic ability of students.

DESCRIPTION AND MODE OF ADMINISTRATION OF THE STUDENT ORIENTATION SURVEY (SOS)

The Student Orientation Survey (SOS) is a research inventory designed to assess college students expressed attitudes regarding curricular-institutional policies, their views on preferred modes of learning, student faculty roles and so on. The SOS provides a means of profiling students' general orientations toward various philosophies, purposes and processes related to a college education.

Morstain and Gray (1973) identified five major dimensions along which students might be expected to differ in their views and attitudes. These five dimensions are as follows -

1. Purpose - attitudes regarding the purposes of a college or university education;
2. Process - preferences for different teaching/learning modes;
3. Power - attitudes regarding decision making and student faculty roles;
4. Peer relations - preferences for different modes of association with peers;
5. Public Position - attitudes towards the community/society and student roles.

Two scales tapping each of the five dimensions were developed, for a total of ten scales.

The SOS inventory consists of selected background demographic questions and 80 educational attitude items. These latter items are responded to using a four-point code (strongly disagree, disagree, agree, strongly agree). There are eight items for each SOS scale.

The five areas or dimensions noted above, and the ten scales are listed below :

Student Orientation to College

SOS Scales (Preparatory)	Area of Orientation	SOS Scales (Explanatory)
1. Achievement	Purpose	6. Inquiry
2. Assignment Learning	Process	7. Independent Study
3. Assessment	Power	8. Interaction
4. Affiliation	Peer Relations	9. Informal association
5. Affirmation	Public Position	10. Involvement

Of these ten scales, five cluster together and have been interpreted as relating to a general Preparatory orientation to college - where college is valued for its preparatory function, in terms of acquiring useful knowledge, skills, vocations and social roles. The other cluster of scales have been interpreted as relating to a general Exploratory orientation - where college is highly valued for its exploratory possibilities, for the opportunities

it affords for exploring one's interests, ideas and personal identity.

Scale Descriptions

Preparatory Orientation Scales

Achievement - This scale measures the degree to which a student is oriented towards (a) the achievement of a priori goals; (b) the acquisition of specific skills or credentials and (c) satisfaction of external rewards. The student who identifies with the contents of these items has a practical, goal oriented outlook and tends to gauge various aspects of college experience in terms of their future usefulness.
E.g. More college courses should be geared to the kind of job a student wants after college.

Assignment Learning - The student who agrees with a high proportion of items on this scale reports that he learns best by meeting specific, clear-cut, formal requirements.
E.g. An academic program is best organized with formal courses, with regular class assignments and examinations.

Assessment - An evaluation by those in authority is quite important for the student who scores high on this scale. Grades and examinations are valued by this student because they provide not only a measure of his abilities, but some incentive for using those abilities.
E.g. Teachers are the only ones who should critically judge a students work.

Affiliation - The student who scores high here enjoys belonging to organized extra-curricular groups. He also stresses the importance of maintaining strong institutional loyalty and support.
E.g. Youth organisations, clubs and other social groups are an important part of the college life.

Affirmation - Students agreeing with the items on this scale affirm the values of a peaceful and orderly society. They tend to support public officials in their commitment to solve problems and feel the majority can be counted on to make the right decisions.
E.g. I think all the talk about the problems of our society is blown out of proportion.

Exploratory Orientation Scales

Inquiry - Learning is its own reward, is the expressed motivation of the student responding positively here. He concurs with statements which stress the value of insight, the perception of relationships and knowing how to learn.
E.g. I would like to study the relationship between several fields rather than learning many facets about just one area.

Independent Study : The items on this cale help identify the student who works best on his own. He prefers informal, unstructured courses in which he can set his own

goals and standards and pursue his own interests.

E.g. Instead of taking a regular course, I would rather have an individually tailored 'learning contract' with a faculty member.

Interaction - An egalitarian attitude toward faculty members characterises the student with a high score here. He expresses the belief that students are competent to, and should participate with faculty in planning courses and academic programmes.

E.g. Students should be involved with faculty in establishing degree and graduation requirements.

Informal Association - Spontaneity marks the pattern of peer-relationships expressed by the student scoring high here. He expresses little need for affiliation with organised groups or for participation in formal, well-planned events.

E.g. I would rather spend an evening with a friend than attend a planned social event.

Involvement - A strong interest in social and political affairs characterises the student scoring high on this scale. He sees students as having a rightful place in dealing with the public problems of our time and states his readiness to take a stand on public issues.

E.g. I am very much interested in issues of a social and political nature.

Test Administration - The SOS is a simple, self-administering inventory. Students read through the inventory and respond according to a four point Likert code (strongly disagree, disagree, agree, strongly agree).

Scoring - Scale scores for the SOS are calculated in the following manner. There are eight items per scale, and each item has a possible range of 1 to 4. Certain item responses are reversed in scoring prior to calculation of scale scores. Raw scale scores are summative over the eight items. Thus scale scores can range from 8 to 32. No scale score is computed for individuals who omit three or more items for a particular scale. For individuals who omit only one or two items, the mean score (to the nearest whole number of the other items responded to is entered as the item score for the missing item prior to scale scoring.

Reliability

On the basis of calculation of coefficient alpha, Horstain (1976) pointed out a high measure of internal consistency for all the scales :

SOS Scale	Coefficient Alpha
Achievement	.72
Assignment Learning	.75
Assessment	.74
Affiliation	.82
Affirmation	.73
Inquiry	.74
Independent Study	.80
Interaction	.82
Information association	.64
Involvement	.74

At the same time, Morstain (1976) found the test-retest coefficients over a period of ten days to be consistently high.

The Pearson coefficients for the SOS scales were :

SOS Scales	Pearson coefficients
Achievement	.70
Assignment Learning	.74
Assessment	.75
Affiliation	.82
Affirmation	.56
Inquiry	.80
Independent Study	.80
Interaction	.73
Informal association	.61
Involvement	.75

Validity

Construct validity of the SOS scales, as pointed out by Morstain (1973) was based upon correlational analyses with other research inventories (the Omnibus Personality Inventory, Gordon Personality Inventory and the College Student Questionnaires) and the above analyses indicate that the educational attitudes of students vis-a-vis curricular/instructional policies and procedures vary directly in relation to their general personality orientations.

DESCRIPTION AND MODE OF ADMINISTRATION OF ACADEMIC SELF CONCEPT SCALE

"Academic self concept refers to behaviours in which one indicate to himself (publicly or privately) his ability to achieve in academic tasks as compared with others engaged in the same task" (Brookover et al, 1965).

Brookover's (1965) measure of the Self concept focuses specifically upon the self in the context of a learning situation. Brookovers (1965) instrument was originally designed for school children. A modified version of the scale adjusted for college students has been used in this study.

Brookover (1965) and his associates were the first to develop an instrument designed to measure the academic self concept. A set of 16 multiple choice questions

designed by research staff and consultants were administered to 49 seventh grade students in the pre-test group. These sixteen items judged to be relevant to one's conception of his ability to do well in school were presented to the students as part of a paper-pencil test. A scalogram analysis of the pre-test responses to the sixteen questions produced an eight question Guttman-type scale with a reproducibility of .91.

At the second stage, the scale was administered to all seventh grade students in 'Oldtown' public schools during the fall of 1960.

A second scalogram analysis was made of the 1,050 seventh grade students responses. Coefficient of reproducibility, .91 for boys and .90 for girls, were somewhat higher than for the pre-test group. Later on, eight more equivalent items were added to the scale, thus increasing the total number of items to sixteen.

The items in the questionnaire requires the person to compare himself with others on dimensions of academic ability in an expanding system of social relationships beginning with his close friends and moving outwards.

Administration

Administration is a very simple process as it is a paper pencil test. The students can usually complete the questionnaire within fifteen minutes.

Scoring

For all the questions on the scale, there are upto 5 response alternatives, and values of 1 to 5 have been assigned for each of the sixteen items.

Originally the test was scored in two ways - Guttman scale type scores was determined item-wise and a conventional total score for the eight items. The latter was the sum of the values 1 to 5 assigned to the responses for each item (the higher self concept alternatives received the higher values). But, after the items were increased to 16, correlation between academic self concept and G.P.A. for each scoring method showed little disparity.

So, in this analysis also, total self concept scores rather than scale type scores are being used.

Reliability

Brookover et al. (1964, 1965) reported internal consistency reliability ranging from 0.82 to 0.92 for boys and .77 to 0.84 for girls for a sample of subjects drawn from grades seven to ten.

Test-retest reliability coefficients reported for one year intervals ranged from 0.69 to 0.72 for boys and 0.69 to 0.77 for girls in grade levels 8 to 12 (Brookover et al. 1962).

Validity

A cross validation of general self concept scale's prediction of grade point average was made on a random sample of students in the schools studied (Brookover et al. 1964). Predicted grade point average correlated with actual grade point average .70 for girls and .71 for boys.

DESCRIPTION AND MODE OF ADMINISTRATION OF CATTELLS'S CULTURE FAIR TEST

The Culture Fair intelligence test aims to bring out the most consistent core of basic mental capacity-tests that will more clearly separate the individuals reasoning ability, the fluid intelligence - as opposed to the crystallized intelligence, that which is influenced by schooling, social class etc.

Because of its culture-fairness the Culture Fair Test is of superior applicability to groups of students differing in both racial and social backgrounds and those differing in areas of academic specialisation.

Cattell's (1973) Culture Fair intelligence scales 3A and 3B (for use on college students) are made use of in this study.

The forms A and B have been constructed to be as nearly as possible equal in difficulty and are exactly similar in design, number of items, position of correct responses etc.

Each form (A and B) in scale 3 consists of 4 sub tests, series, classification, matrices and topology (condition). In both forms, the items have been arranged in order of increasing difficulty.

Test Administration

The culture fair intelligence tests (Cattell 1973) were adapted to administration as group tests also. Form A was administered first. The printed booklets with the sub tests were distributed to the subjects. The general instructions (for both forms A and B) were read out from the manual (Cattell 1973) - these explain to the subject what the test is about.

After this the instructions for the sub-test was read out. The experimentor explained the examples to the subject properly. After this the subject was allowed three minutes to answer the sub test. In this manner, the other three sub tests were also explained and timed. After all the sub tests had been answered, the answer booklets were collected quickly.

The subjects were given separate answer sheets to record their responses.

The instructions for form B was the same as in form A - the only difference being in the explanation of the examples.

Scoring

As separate answer sheets were used in this tudy, the scoring was done by a stencil key fitted exactly over

the answer sheet. One mark was given for each correct response. If more than one response was given, no marks were allotted. In the sub test 2 of both forms, there had to be two answers for each item and both had to be correct to get one mark. The number of answers correct for each of the four sub tests were added to get the total raw score. The proper norms table was then used to convert the raw scores into IQ values and percentiles.

Reliability

All the coefficients were found to be high when evaluated across large and widely diverse samples (Cattell 1959). The reliability of scale 3 as reported in Table 3.2 of the Manual (1973) is as follows :

RELIABILITY OF CULTURE FAIR TESTS : SCALE 3

Method of Evaluation	Average Reliabilities for full test across samples (A+B)
1. Consistency over item (split half)	.85
2. Consistency over parts inter-form correlations corrected to appripriate length	.82
3. Consistency over time test-retest, time interval varying from immediate to one week	.82

Validity

Concept and concrete validity for the scale measuring the pure factor (g) as reported in Table 3.4 of the Manual (1973) is as follows :

VALIDITIES OF THE CULTURE FAIR TEST - SCALE 3

Method of Evaluation	Average validities across samples for (A+B)
1. Concept validity (direct correlations with pure intelligence factor)	.92
2. Concrete Validity (r with other tests of general intelligence, including the SAT, Wechsler etc.)	.69

Sample

The present exploratory study was undertaken to identify the patterns of educational orientations held by students in different academic specialisations and its effect on their performance.

For this reason, two comparative groups of subjects coming from distinctly different academic environments were chosen.

The first group was taken from the IIT, Delhi as being representative of specialised, technical education. The second group consisted of students from the Jawaharlal

Nehru University, School of Social Sciences, as being representative of General, Social Science education.

Data was collected from the students of the 4th and 5th year of B.Tech. courses at IIT, Delhi and the Ist and 2nd year M.A. courses in the School of Social Sciences, Jawaharlal Nehru University.

These two subsamples were matched on the following counts :

(a) In terms of grading, internal assessment and continual evaluation, both the institutions, IIT, Delhi and Jawaharlal Nehru University, Delhi, follow similar methods.

(b) The two groups consisted of students falling around the same age group.

(c) In terms of the number of years of schooling/college undergone at the time of testing, both the groups were identical.

At the time of analysis, responses were available from a total of 100 students, 50 from each group.

Background informations such as age, parents annual income, educational level, etc. were also collected with the help of the background information sheet attached along with the SOS.

Age

The age range for the students in the Engineering curricula was found to be between 19 and 22 years, and for the students in the School of Social Sciences it was between 20 and 24 years. The average age of the engineering students was 20 years 4 months and for the social science students 21 years and 7 months.

Parents' Educational Level

The average educational level of the fathers of the engineering stuients was found to be post-graduate level and of the mothers was upto the graduate level. Except in 2 instances, none of the other fathers hai an education of less than high school. Nearly 50 per cent of the fathers had a post graduate professional qualifications.

The average educational level of the fathers of the social science students was upto the graduate level and the mothers, upto high school. Only 20 per cent of the fathers had either a post graduate or professional qualification, and more than 50 per cent of the mothers had either upto 8th or less education.

Parents' Occupation

A general glance of parents occupation as stated by the students showed a large incidence of technical, managerial and administrative posts held by the fathers of engineering students. A few of the engineering students'

mothers were also employed as teachers and lecturers.

For the most part, fathers of students in the social science group were agriculturists and businessmen. The other occupation noticed here consisted of administrative jobs, with only 2 people with technical, professional training.

Parents' Annual Income

The average income of parents of the engineering students ranged from Rs.12,000 to Rs.16,000 per annum.

The average income of parents of the social science students ranged from Rs.5,000 to Rs.10,000 per annum.

The other background information collected was with respect to the schooling/college attended prior to joining the present course and the major subjects taken therein.

Among the engineering students, 32 per cent did their schooling at private schools, 18 per cent at Government schools, 26 per cent at public schools and the other 34 per cent at central school, convent schools and secular schools.

All the students had taken science as their major at the school level also.

Among the social science students, 42 per cent did their schooling at Government schools, 30 per cent at private schools, 8 per cent at public schools and the

other 20 per cent at central, covent and secular schools.

54 per cent of the social science students had taken science as their major at the school level and the other 46 per cent only had taken arts at the school level. However, at the college (degree) levels, only 16 per cent of these had taken science as opposed to 84 per cent who changed over to the arts.

At the degree level, 64 per cent of the students studied at Government colleges while the rest studied at private colleges.

Test Administration

Except for testing ability (which was done by using Catell's (1940) Culture fair test), the other two tests, SOS and academic self concept, along with the background information sheet was given to the students being tested for their responses. The ability test was administered for both groups as specified by the Manual (Cattell's Culture fair test, 1973) for the scales 3A and 3B.

Data Analysis

The following statistical methods were used for data analysis :

1. t-test : to test the significance of difference between the means of the engineering and social science groups the t-test was used.

2. Correlation : To study the relation between the different variables, product-moment correlation coefficients were computed.

3. Partial Correlations were computed to check for the relationship between the variabes used in the study.

CHAPTER - IV

DISCUSSION OF RESULTS

In order to test the hypothesis formulated in Chapter II, Part II, the data was analysed by means of the following statistical methods.

1. t-test : to test the significance of the difference between means of the Engineering and social science groups.
2. Correlation : To study the inter-relations between the variables used in the study, Pearson's Product Moment correlation was used.
3. Partial Correlation : To study the true relationship of the variables used in the study, first order partial correlations were calculated.

This chapter discusses the findings related to the different variables studied and discusses the hypotheses. As the sample size is small, consisting of 50 students, each from the two areas of specialisation, the findings have been interpreted as only indicative of the general trends. Generalisations can only be made when the study is replicated on a large sample.

FINDINGS RELATED TO EDUCATIONAL ORIENTATIONS OF STUDENTS

This section discusses the findings related to the expressed educational orientations of students in the Engineering and Social science curricula.

INTER GROUP DIFFERENCES BETWEEN THE EDUCATIONAL ORIENTATIONS OF THE ENGINEERING AND SOCIAL SCIENCE STUDENTS

Hypothesis 1 states that "Students enrolling in different curricula have noticeably different educational orientations :

(a) Engineering students have a predominantly preparatory orientation toward college education;

(b) Social science students have a predominantly exploratory orientation toward college education."

't' values were calculated to test the difference in the expressed educational orientations of the two groups. The results are shown in Table 1.

Table 1

The mean, standard deviation and 't' values for all the scales on the preparatory and explanatory educational orientations of the students in the Engineering (E) and Social Science (S) Curricula.

Sl. No.	Educational Orientation Scales	Mean		SD		't' values
		E	S	E	S	E and S
	Preparatory Scales					
1.	Ach.	22.24	22.58	2.35	2.98	.640
2.	A.L.	22.66	23.72	3.24	2.80	1.628
3.	A.S.S.	20.32	20.56	2.96	3.28	.470
4.	Affl.	22.52	22.10	3.34	3.34	.688
5.	Affir.	18.50	18.70	3.56	3.94	.278
	Exploratory Scales					
6.	Inq.	21.76	23.20	2.36	2.84	2.813*
7.	I.S.	22.56	22.96	2.49	2.72	.735
8.	Int.	21.88	21.08	3.25	3.64	1.666
9.	I.A.	20.30	20.66	2.75	2.89	.723
10.	Inv.	20.06	21.40	4.27	3.85	1.61
11.	Total Preparatory	106.24	107.66	9.71	9.69	1.911**
12.	Total Exploratory	106.54	107.30	7.87	7.50	1.869**

n = 50. * p .05 ** pc .10

The significant 't' values show up here for only three of the scales. The following section gives a more detailed analysis of the results reported in Table 1.

AREAS IN WHICH THE ENGINEERING AND SOCIAL SCIENCE STUDENTS DIFFER SIGNIFICANTLY

Inquiry :

This scale describes the attitudes of the students regarding the purposes of a college or university education. It is seen here that Social science students stress the importance of learning as its own reward, whether or not this learning had a practical or vocational pay-off. When compared to the Engineering students, the Social science students stressed the value of insight, the perception of relationships and expressed more interest in an academic/ intellectual purpose of education.

AREAS IN WHICH THE ENGINEERING AND SOCIAL SCIENCE GROUPS DO NOT DIFFER SIGNIFICANTLY

Achievement :

This scale measures the degree to which a student is oriented towards (i) the achievement of a priori goals (usually success in particular or success in general), (ii) the acquisition of specific skills and the satisfaction of receiving external rewards.

The results show that the two groups do not differ significantly in their outlook. This is not in accordance

with the results reported by Morstain (1972) where the Engineering and technical students showed a strong preference for this outlook and the social science students did not. This result may be due to the fact that, to a great extent, the lecture-examination method still holds good in both Engineering and Social Science curricula.

Assignment Learning:

Significant differences did not show up on this scale and both the Engineering and Social science students indicated a more or less equal preference for specific, clear-cut, formal requirements.

Assessment :

Both the Engineering and Social science groups indicated more or less equally that an evaluation by those in authority was significant and they both stressed equally the importance of grades and examinations. This again, is opposed to the findings related by Morstain (1972) who said that Social science students differed significantly from the Engineering students on this scale.

Affiliation :

The expression peer-relation, participation in organized activities and the importance of maintaining strong institutional loyalty is brought forth by this

scale. Here also, the two groups showed very little differentiation in their outlook towards this aspect of college life.

Affirmation :

This scale describes the attitudes of the student towards the community/society. The student scoring high on this scale prefers a peaceful and orderly society and is cautious about radical social change. No significant difference was seen in this scale between the two groups of students.

All these scales relate to a general preparatory orientation to college - where college is highly valued for its preparatory functions in terms of acquiring useful knowledge, skills, vocations and social roles.

Though no significant difference was seen between the expressed orientations of the two groups of students on these scales, the mean scores for the scales showed that students in the social science groups scored slightly higher on all scales of the preparatory orientation.

The following are the exploratory scales on which the two groups do not differ significantly.

Independent Study :

No significant difference between the two groups was seen on this scale where students prefer informal,

unstructured courses in which they set their own goals and value the freedom to pursue their own interests.

Interaction :

This scale expresses the belief that students should participate with the faculty in planning courses and academic programmes. Both Engineering and Social science students expressed a desire to participate in such decisions.

Informal Association :

No significant difference was seen between the two groups on this scale which expresses little need for affiliation with organised groups or for participation in formal, well planned events.

Involvement :

A strong interest in social and political affairs characterises the student who has a high score on this scale. Here also, no significant difference was seen between the students in the two groups.

Among these scales also, except in the case of the scale, Inquiry, where Social science students expressed a strong interest in academic and intellectual purpose of education, the mean scores on all the scales indicate that social science students have scored higher on all scales of the exploratory orientation.

Total of Both Preparatory and Explanatory Orientation

Total Preparatory Orientation

A significant difference was seen between the Social science and Engineering groups here, with the Social science students scoring higher on all preparatory scales when compared to the Engineering students.

This result is in opposition to the results given by Morstain (1973) who indicated that students in the Social sciences and Humanities had relatively lower mean scores on all preparatory scales when compared to students in Professional and Technical education. It is also not in accordance with the stated hypothesis.

Total Exploratory Orientation

A significant difference was seen between the two groups here, again, with the social science group expressing a higher preference for an exploratory orientation than the Engineering students. These results were in accordance with the results reported by Morstain (1971) in that the Social science students expressed more interest in participatory roles with faculty and tended to view learning as its own reward.

Besides the above inter group comparisons, intra-group comparisons were also made to study any differences existing in the preparatory and exploratory orientation of students.

INTRA-GROUP DIFFERENCES IN EXPRESSED EDUCATIONAL ORIENTATIONS OF STUDENTS IN THE TWO GROUPS

't' values were calculated to test the significance of difference of means within groups for the two groups. The results are shown in Table 2.

Table 2

Intra-Group Mean, S.D., and 't' values for the Engineering (E) and Social Science(S) Groups

	Sl. No.	Educational Orientation Scales	Engineering Mean	Engineering S.D.	Engineering 't' value	Social Science Mean	Social Science S.D.	Social Science 't' value
Dimensions								
Purpose	1.	Ach.	22.24	2.35	1.203	22.58	2.98	0.971
	2.	Inq.	21.76	2.36		23.20	2.84	
Process	3.	A.L.	22.66	3.24	.161	23.72	2.80	1.690*
	4.	I.S.	22.56	2.49		22.96	2.72	
Power	5.	Ass.	20.32	2.96	2.557**	20.56	3.28	.531
	6.	Int.	21.88	3.25		21.08	3.64	
Peer relations	7.	Affl.	22.52	3.34	3.163***	22.10	3.34	2.440**
	8.	I.A.	20.30	2.75		20.66	2.89	
Public Position	9.	Affir.	18.50	3.56	2.380***	18.70	3.94	3.610****
	10.	Inv.	20.06	4.27		21.40	3.85	
	11.	Total Prep.	106.24	9.71	.201	107.66	9.69	.649
	12.	Total Expl.	106.54	7.87		107.30	7.50	

n = 50

* p< .10 ** p .05 *** p .01 **** p .001

INTRA-GROUP DIFFERENCES AMONG THE ENGINEERING STUDENTS

The results show that a significant difference was seen in the perception of three dimensions.

Power :

In this dimension expressing student attitudes regarding decision making and student-faculty roles, the Engineering students expressed more interest in having a participatory role with faculty in decision making.

Public Position :

In this dimension, expressing attitudes towards the community/society of student roles, the students expressed a desire to be involved in socio-political issues.

In both these dimensions, the students identified more with the exploratory scales of Interaction (power) and Involvement (public position). This is in direct opposition to the results reported by Morstain where Engineering students expressed a preference for less social involvement, and more evaluations and decision making by the faculty. This may be due to the fact that the sample under study has been taken from an institution where a more informal organisational structure exists.

Peer Relations :

The only other scale on which a significant

difference is seen is under the dimension of Peer Relations - Here, it is seen that the Engineering students prefer a more structured extra-curricular group and maintain strong institutional loyalty and support.

Purpose and Process :

On the other two dimensions of 'purpose' and 'process', expressing attitudes towards the purpose of university education and different modes of teaching/ learning, no significant difference exists in the expression of the preparatory and exploratory outlook. This again, may be due to the fact that, among the Engineering sample, a certain amount of choice is available for the students in choosing their curricula.

The trend, though, indicates a learning towards a preparatory outlook-for a more structured learning situation with a goal-oriented outlook.

INTRA-GROUP DIFFERENCES AMONG THE SOCIAL SCIENCES STUDENTS

For the Social science students also, significant differences were seen among three dimensions only.

Process :

For the dimension process - indicating a preference for different teaching/learning modes, the social science students tended to have a preparatory orientation with a preference for formal courses and regular class assignments

Peer Relations :

Along the dimension of peer relations, expressing the preferncе for different modes of association with peers, the social science students, again tended to have a preparatory orientation with a preference for organized extra curricular groups and strong institutional affiliation.

This again does not support the results reported by Morstain (1973) who reports an exploratory orientation among the social science students. This may be due to the fact that, as the curricula and the mode of instruction is fixed, and the existing structure continues to emphasize the relevance of examinations as a means of assessment a preparatory outlook is only to be expected among students in both curricula.

Public Position :

The only other scale on which a significant difference is brought forth is on the dimension public position which expresses attitudes toward the community/ society and student roles. Here the students emphasise an exploratory outlook, expressing a strong interest in socio-political affairs.

Purpose and Power :

On the two other dimensions, purpose, regarding the purposes of college education and power - regarding

decision making and different teaching learning modes, no significant differences were seen. Students were seen to express more or less equally a goal oriented outlook/ regular evaluation and satisfaction of learning for itself/ sharing educational decision making.

The total preparatory and exploratory orientations for the two groups also showed very little difference with both groups taking a relatively undifferentiated stand on both preparatory and exploratory scales.

FINDINGS RELATED TO ACADEMIC SELF CONCEPT OF STUDENTS IN BOTH CURRICULA

Hypothesis 2 states that "There is a significant and positive relationship between academic self concept and academic achievement."

Both product moment correlations and partial correlations were calculated to check for the true relationship between these two variables. When the partial correlations were worked out, ability which has been reported as a significant variable influencing achievement (Cattell 1952) was used as a control variable.

Table 3

Correlation between academic self concept and academic achievement for the Engineering (E) and Social sciences (S) Groups

S.No.	Groups	Correlation
1.	Engineering	.610
2.	Social Sciences	.508

n = 50, p .001

The results here show that a significant and positive relationships exists for both the groups, indicating that high Academic achievement is accompanied by high Academic self concept. This finding supports the

earlier findings reported by Brookover (1964) and Narayan (1971) where Academic achievement was accompanied by a high Academic self concept.

Further support is provided for these findings in the following table.

Table 4

The partial correlation coefficients for the Engineering (E) and Social Science(S) Groups with one variable controlled

S.No.	Groups	Correlation between	Variable controlled	r coeff.
1.	Engineering	Academic self concept and Academic Achievement	Ability	.579
2.	Social Sciences			.509

n = 50, p .001

The results here indicated that, after controlling the effect ability may have an Academic achievement, both the Engineering and Social science groups showed a significant and positive relationship between academic self concept and academic achievement.

Thus, for both the groups, the second hypothesis was seen to hold true.

Effect of Academic Self Concept on the Ability and Achievement of the two groups

Inter-correlations and partial correlations were calculated to check for the effect of Academic self concept on the performance and ability of students.

Table 5

Inter-correlations between Academic Achievement and Ability for the Engineering (E) and Social Science(S) students

Sl.No.	Groups	Correlation
1.	Engineering	.314
2.	Social Sciences	.030

n = 50, p .01

The results indicate that a significant relationship, which should exist between Academic achievement and ability, as reported by Cattell (1945) shows up only for the Engineering group.

Partial correlations were further calculated to test for these relationships.

Table 6

Partial correlation coefficients for the two groups with one variable controlled

Sl. No.	Groups	Correlation Between	Variable Controlled	r Coefficient
1.	Engineering	Academic Achievement and ability	Academic self concept	.313
2.	Social Sciences			.518

The results showed that the relationship between Academic achievement and ability showed up after controlling for the effect of self concept for the Social Science group, whereas it stayed more or less constant for the Engineering group.

This may be due to the fact that, for the Engineering students, as the methods of evaluation and therefore measures of academic achievement are more objective, reliable and stable, the perception of relationship between one's ability to achievement is made easier.

Whereas, for the Social Science students, the methods of evaluation are more subjective, and therefore measures of academic achievement also vary continuously. It is far more difficult for the Social science students to perceive a direct relationship between their ability and their measures of achievement. However, the Academic

self concept of students is much more likely to influence the perception of their ability and this shows up in the results obtained.

Academic self concept, can therefore be used as a useful predictor of the performance of students especially in the Social Science group.

FINDINGS RELATED TO THE RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT, EDUCATIONAL ORIENTATION AND ACADEMIC SELF CONCEPT FOR STUDENTS IN THE ENGINEERING AND SOCIAL SCIENCE CURRICULA

Hypothesis 3 stated that "The degree of relationship between the academic self concept and academic achievement is related to the educational orientations of the student".

As the first step towards explaining this hypothesis, the product moment correlations were calculated between all scales of the educational orientations of both groups of students and their scores on the academic self concept scale and achievement scores.

Table 7

The correlation between Educational Orientation Scales and scores on Academic self and Academic Achievement for the Engineering students

Sl. No.	Variables: Educational Orientations	Academic self concept correlations	Academic Achievement Correlations
	Preparatory scales		
1.	Ach.	-.085	-.086
2.	A.L.	.022	.025
3.	Ass.	.076	.218
4.	Affl.	-.158	-.126
5.	Affir.	-.035	.242*
	Exploratory scales		
6.	I.S.	-.035	-.057
7.	Int.	.098	.309**
8.	I.A.	-.204	-.127
9.	Inv.	-.033	-.215
10.	Inq.	.226	.299**
11.	Total prep.	-.108	-.036
12.	Total Expl.	.061	.128

n = 50, *p .10 **p .05

The results in Table 7 show that no significant relationships exist between the Academic self concept of the Engineering students and their Educational

orientations in either of the two areas, exploratory orientation or preparatory orientation.

A significant relationship was seen to exist between the preparatory scale Affirmation and Academic achievement, and the exploratory scales - Interaction and Inquiry and Academic achievement.

This indicates that stressing the significance of insight and the perception of relationships, and the curiosity to learn along with more involvement in educational decision making will facilitate higher achievement for this group. The two general orientations (total preparatory and total exploratory) however, did not show up any relationship with Academic achievement.

Also, though the relationship between Academic self concept and achievement was established, it was seen that no significant relationship existed between any orientation scale scores and Academic self concept. This indicates that the Academic self conceptsof the students belonging to this group are not influenced to any extent by their attitudes towards education. Some other factors such as motivational or background factors may have more influence on the self concept of students than their orientations toward college education.

Table 8

The correlation between Educational orientation scales and scores on the Academic self concept scale and Academic achievement for the Social science students

Sl. No.	Variables: Educational Orientations	Academic self concept correlations coefficient	Academic Achievement Correlations coefficient
	Preparatory scales		
1.	Ach.	.177	-.127
2.	A.L.	.160	-.062
3.	Ass.	.352***	.062
4.	Affl.	.044	.124
5.	Affir.	.095	.128
	Exploratory scales		
6.	I.S.	-.151	-.072
7.	Int.	-.246*	-.116
8.	I.A.	.012	-.052
9.	Inv.	.090	.169
10.	Inq.	.176	.270**
11.	Total Prep.	.274**	.059
12.	Total Expl.	-.056	.086

n = 50, **p .05 ***p .01.

The results on Table 8 show a significant and positive relationship between the scale Assessment and Academic self concept for the Social Science students. This indicates that the grades acquired by the student influence his self concept. It was also noticed that though the other correlations on the scales were not significant, all the correlations were positive. This in turn has showed up in the total preparatory score. A high Academic self concept was present among students who expressed a preparatory orientation.

A significant relationship was seen to exist between the exploratory scale Inquiry and Academic achievement. This indicated that the expressed motivation of the student on the aspect of learning as its own reward, along with satisfaction of inquiry in itself will lead to higher achievement here. No other significant relationship exists between the other scales and Academic achievement. These results indicate that the Academic self concept of Social science students is to some extent influenced by a preparatory orientation toward college education.

At the second stage, hypothesis three consists of 4 corollory hypotheses.

To test these, partial correlation coefficients were calculated between the variables - Academic self concept, Academic achievement and the Educational orientation of both groups of students.

The first corollary hypothesis states that "Social Science students with an exploratory orientation show a greater positive relationships between academic self concept and academic achievement".

The correlation between academic self concept and academic achievement for the social science students was .508. This indicates that there is a relationship between academic self concept and academic achievement for this group.

Table 9

Partial correlation coefficients for the three variables, Academic self concept, Academic achievement and Exploratory orientation for Social science group.

Sl. No.	Correlation Between	Variable Controlled	r coefficient
1.	Academic Self Concept and Academic achievement	Exploratory Orientation	.515
2.	Exploratory Orientation and Academic Self Concept	Academic Achievement	-.117

The partial correlation results show that after controlling the variable Academic achievement, for the Social science group, the Exploratory orientation had no influence on the variable Academic self concept. The trend

was in fact toward a negative relationship with high Academic self concept being accompanied by low scores on the exploratory orientation.

Controlling the variable exploratory orientation, showed that there was no significant difference in relationship between Academic achievement and Academic self concept as measured before and after controlling - the correlations being .508 before and .515 after controlling of the variable. Here also, the trend was that an exploratory orientation led to less significant achievement.

This disproves the hypothesis and indicates that an exploratory orientation makes for poorer achievement among social science students.

The second corollary hypothesis stated that "Social science students with a Preparatory orientation show less positive relationship between Academic self concept and Academic achievement.

The correlation between academic self concept and academic achievement as mentioned earlier is .508 for social science students.

Table 10

Partial correlation coefficients for the three variables, Academic self concept, Academic achievement and Preparatory orientation for Social science group.

Sl. No.	Correlation Between	Variable Cancelled	Correlation coefficient
1.	Academic Self Conception	Preparatory Orientation	.512
2.	Preparatory Orientation and Academic Self Conception	Academic Achievement	.234

Results here show that after controlling the variable academic achievement for the Social science group, a Preparatory orientation toward college education was accompanied by a high Academic self concept score, indicating that a Preparatory orientation toward college education facilitdes the development of a high Academic self concept. But when the preparatory orientation was controlled, the difference in the relationship between Academic self concept and Academic achievement before and after controlling was negligible, being .508 and .512 respectively.

The trend here was that students with a preparatory orientation tend to do better and the hypothesis was thus disproved.

The third corollary hypothesis states that "Engineering students with an exploratory orientation show less positive relationship between academic self concept and academic achievement."

The correlation between Academic self concept and Academic achievement for the Engineering students is .610 - indicating that a high academic self concept is accompanied by high academic achievement.

Table 11

Partial correlation for the three variables, Academic self concept, Academic achievement and Exploratory orientation for the Engineering group.

Sl. No.	Correlation Between	Variable Controlled	Correlation coefficient
1.	Academic Self Concept and Academic Achievement	Exploratory Orientation	.608
2.	Exploratory Orientation and Academic Self Concept	Achievement	-.22

The results indicate that after controlling the variable Academic achievement for the Engineering group, the relationship between the Exploratory orientation and

Academic self concept was a negative one, showing that the Exploratory orientations held by these students in no way influences their Academic self concept.

When the variable Exploratory orientation was controlled the difference in the correlation before and after controlling the variable was negligible being .610 and .608 respectively showing that the exploratory orientations of students had no influence on their academic self concept. The hypothesis was thus disproved.

Corollary hypothesis 4 states that "Engineering students with a preparatory orientation show a more positive relationship between academic self concept and academic achievement."

The correlation between academic self concept and academic achievement for the Engineering students was .610.

Table 12

Partial correlation for the three variables, Academic self concept, Academic achievement and Preparatory orientations for Engineering Group

Sl. No.	Correlation Between	Variables Controlled	Correlation coefficient
1.	Academic Self Concept and Academic Achievement	Preparatory Orientation	.610
2.	Preparatory Orientation and Academic Self Concept	Academic Achievement.	-.103

The results show that when the variable achievement was held constant, the relationship between Academic self concept and preparatory orientation, though not significant, was of a negative relationship. This indicates that a high Academic self concept was accompanied by a low preparatory orientation. The correlation between Academic achievement and Academic self concept was the same, i.e., .610, both before and after controlling the variable preparatory orientation. This indicates that the students here take a midway orientation towards college education and that the preparatory orientation does not influence the relationship between students Academic self concept and their Academic achievement.

Based on these results, certain conclusions have been arrived at. These conclusions will be stated in the following chapter.

CHAPTER - V

CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

In this study, an attempt was made to identify the patterns of Educational Orientations held by students in different curricula and also to find out the effect of these orientations had on the students' performance. The following conclusions, based on the results discussed, have been made.

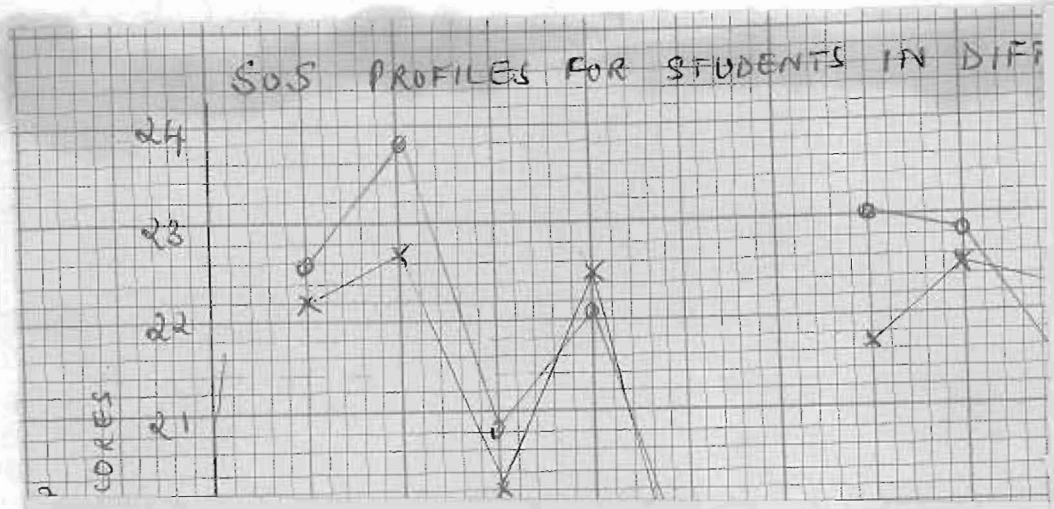
CONCLUSIONS

Differences in the Patterns of Educational Orientations held by Students in the Engineering and Social Science Curricula

The results showed that no significant differences were seen in the patterns of orientations held by the two groups except in the degree of response. It was hypothesised, based on studies by Morstain (1973) and others, that students in the Engineering curricula would have a predominantly preparatory orientation toward college education, favouring a structured, goal-oriented education, and students in the Social science curricula would have an exploratory orientation toward college education, favouring a liberal, unstructured education.

The results showed that students in the Social science curricula expressed higher scores on both the

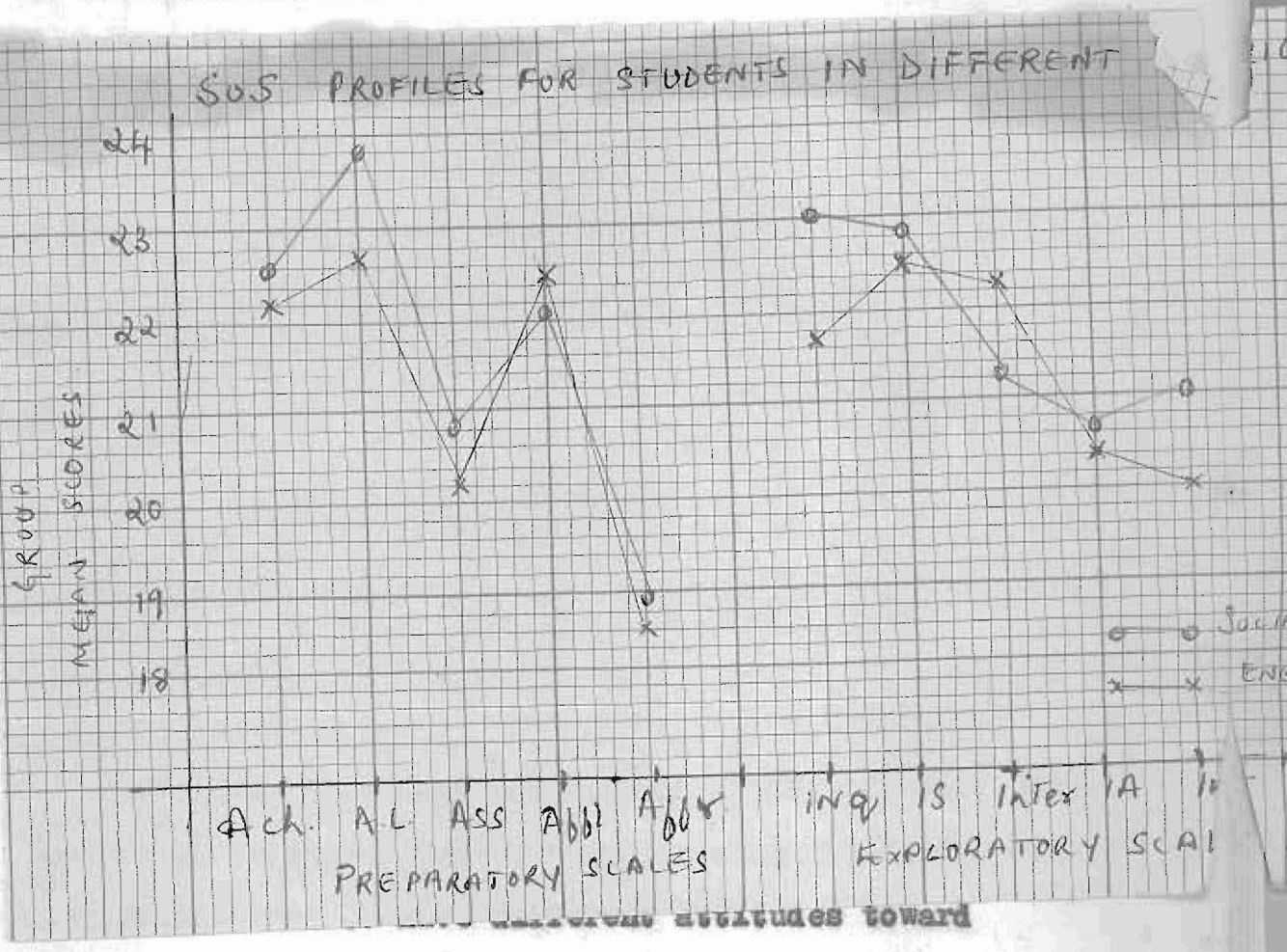
preparatory and exploratory scales of the SOS, as shown in the graph below.



Studies by Feldman and Newcomb (1967), Stern (1963) and others indicated that students coming from different disciplines tend to have different attitudes toward education.

Morstain (1973) developed an inventory (SOS), to study the attitudes held by students towards the purpose and process of college education. Morstain (1973) found that this Student Orientation Survey (SOS) was also able to differentiate between the patterns of Educational Orientations held by students in different curricula. He reported that students coming from the Engineering and

preparatory and exploratory scales of the SOS, as shown in the graph below.



education.

Morstain (1973) developed an inventory (SOS), to study the attitudes held by students towards the purpose and process of college education. Morstain (1973) found that this Student Orientation Survey (SOS) was also able to differentiate between the patterns of Educational Orientations held by students in different curricula. He reported that students coming from the Engineering and

technical curricula had a definite preparatory orientation toward college education, and the students' coming from the Humanities and Social Sciences had an exploratory orientation toward college education.

The SOS was used in the present study to identify the patterns of educational orientations held by students in different curricula in the Indian context.

The item-wise face validity of the inventory indicated a high applicability to the sample studied.

This sample comprised of students from two institutions, Jawaharlal Nehru University, Delhi and Indian Institute of Technology, Delhi. These institutions, are, to a certain extent, western oriented, with continual evaluation and credit courses. It was expected that the Educational Orientations as reported by Morstain (1973) would be reflected in this sample.

The results reported, however, failed to differentiate between the patterns of orientations held by students in different curricula. Intra-group results, however, did show trends supporting Morstains (1973) conclusions on most of the dimensions studied, though these were not significant for the sample under investigation.

The intra-group results indicated results as follows.

Among three of the five dimensions, purpose, process and peer relations, indicating a need for a structured, evaluative and goal-oriented education, the Engineering students tended to have a leaning towards the preparatory orientation as indicated by Morstain (1973) and for the other two dimensions, Power and Public Position, the students expressed a preference for participation with faculty in decision-making and involvement in public affairs (exploratory orientation).

For the Social Science students, intra-group compairsons between dimensions showed that the trend here was towards an exploratory orientation to college education, with the students expressing the importance of education as an 'exploration of one's own interests (purpose), preference for participation with faculty in decision-making (Power) and involvement in Public affairs (Public position). On the other hand, on dimensions, process and peer relations, the students expressed a preference for an evaluative course structure, and structured relationships with peers. These results indicate that, for the dimensions studied, other antecedent factors, such as background factor and prior schooling etc. may influence the formation of Educational orientations.

This was emphasized by the fact that, for both the Engineering and Social science groups, scale scores on the

dimension, process, was indicative of a preparatory orientation, favouring structured evaluative courses. This may be because the college structure in the Indian Universities is perhaps oriented towards a more rigid curricular/instructional process, with the lecture/examination method used as a principle means of assessment.

The sample used in this study was also a small one, and generalisations cannot be made on the basis of the sample. Further testing of the instrument on a larger and more varied sample is necessary before modifications are deemed necessary.

The following conclusions have been drawn regarding the relationship between the dependent variable, Academic achievement, and the other variables studied.

Findings related to the Academic self concept of students in both curricula

The Academic self concept of students in both curricula was found to be significantly related to their Academic achievement. This finding supports the earlier findings reported by Brookover et al. (1965), Narayan (1972) etc. and indicates that a high Academic self concept is accompanied by high academic achievement.

Findings related to the influence of Educational orientation on Academic self concept and Academic Achievement

For the Engineering students, no significant relationships were found between their Educational Orientations and Academic self concept. This indicates that the Academic self concept of these students is perhaps influenced by other factors, such as motivation, aptitude, ability etc. Though the scales Inquiry and Involvement were positively correlated with academic achievement for these students, these orientations did not influence or mediate the relationship between academic achievement and Academic self concept.

For the Social science students, a significant relationships showed up between Academic self concept and the Preparatory orientation toward college education. It was seen here that evaluation by teachers influenced the students self concept. This is probably due to the fact that, for the Engineering students, the methods of evaluation are fixed, objective and reliable and so the relations between self-concept and ability is easily perceived. Whereas, for the Social science students, methods of evaluation are subjective and dependent upon the evaluation - the student here, therefore, has to depend upon the teacher's assessment of his performance.

Even here, though the Academic self concept was influenced by the Preparatory orientations of students, it

was seen that these orientations did not mediate between their self concept and Academic Achievement. Other factors, such as the background and motivational variables may be affecting the performance of these students.

From the discussion, it was seen that the present study has not been able to identify the different patterns of educational orientations held by students in the Engineering and Social science curricula or its influence on their performance.

It was, however, interesting to note that the results regarding the relationship between Academic self concept and Academic achievement of students was a significant one and substantiated earlier research work done by Brookover (1965) and Narayan (1972).

As the study was conducted on a small sample only, the findings will have to be verified on a larger sample before the instrument is modified to suit Indian samples.

Suggestions for Further Research

1. The intra-group findings show that trends do exist among the Educational Orientations of students. Further testing on a larger sample should be made before generalisation of existing trends can be made.

2. An attempt should be made to identify the antecedent factors that affect the formation of Educational orientations

among students - such as home environment, school environment/college environment as well as other personality dispositions.

3. The effect of other non-cognitive factors, such as field dependence/independence, achievement motivation, etc. on the educational orientations of students can be studied.

Based on the results and shortcomings noted above, it is proposed to study the Educational Orientations of students from other institutions to check for the reliability of the scale. At this stage, any modifications that are necessary to suit the Indian situation, will be made.

APPENDIX - A

Abbreviations used in the Study

1.	Educational Orientations	- Educ. Orien.
2.	Achievement	- Ach.
3.	Assignment Learning	- A.L.
4.	Assessment	- Ass.
5.	Affiliation	- Affl.
6.	Affirmation	- Affr.
7.	Inquiry	- Inq.
8.	Independent Study	- I.S.
9.	Interaction	- Int.
10.	Informal Association	- I.A.
11.	Involvement	- Inv.
12.	Preparatory Orientation	- Prep. Orien.
13.	Exploratory Orientation	- Expl. Orien.
14.	Student Orientation Survey	- S.O.S.
15.	Academic Achievement	- A. Ach.
16.	Ability	- Ab.
17.	Academic Self Concept	- A.S.C.
18.	Semester Grade Point Average	- S.G.P.A.

APPENDIX - B

Component item for SOS Scales

SOS Scale	SOS Items
Achievement	10, 20, 30*, 40, 50, 60, 70, 80
Assignment Learning	9, 19, 29, 39, 49, 59, 69, 79
Assessment	11, 21, 31, 41* 51*, 61, 71, 81
Affiliation	15, 25, 35, 45 55, 65, 75, 85*
Affirmation	16, 26, 36, 46, 56, 66, 76, 86
Inquiry	13, 23, 33, 43, 53, 63, 73, 83
Independent Study	14, 24*, 34*, 44, 54, 64*, 74, 84
Interaction	14, 24*, 34*, 44, 54, 64*, 74, 84
Informal Association	17, 27, 37, 47 57, 67, 77*, 87
Involvement	18,28*, 38*, 48* 58*, 68, 78, 88

*Items which are reversed for calculation of scale scores.

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