THE IMPACT OF SCIENCE EDUCATION IN TERMS OF HUMAN RESOURCE DEVELOPMENT IN SOCIO-ECONOMICALLY DEPRIVED GROUPS (WITH SPECIAL EMPHASIS ON CAREER SELECTION)

A Thesis
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by

Sugra Chunawala
Homi Bhabha Centre For Science Education
Tata Institute of Fundamental Research
Bombay

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CERTIFICATE

Certified that the work incorporated in the thesis "The impact of science education in terms of human resource development in socio-economically deprived groups" submitted by Kum Sugra Chunawala was carried out by the candidate under my supervision. Such material as has been obtained from other sources has been duly acknowledged in the thesis.

V. G. KULKARNI,
DIRECTOR

Supervisor
(V.G. Kulkarni)
Director (HBCSE)

Homi Bhabha Centre For Science Education
Tata Institute For Fundamental Research
Homi Bhabha Marg, Colaba, Bombay, 400,005.

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SYNOPSIS

Background

The Homi Bhabha Centre for Science Education (HBCSE) at the Tata Institute of Fundamental research (TIFR), Bombay, has been undertaking action research projects aimed at improving science and mathematics education. The work described in this thesis is an attempt to understand the social aspects of education and the role of education in the development of career choices. Special emphasis was placed on understanding the socio-cultural factors affecting career selection of the socially deprived sections of society, such as girls and students belonging to various scheduled castes and tribes (SC/ST).

Preliminary work in the topic was done in the Talent Nurture Project (TNP) of HBCSE (1980-1985), which was conducted in secondary schools of Bombay Municipal Corporation, with students belonging to socio-economically backward sections. The findings of the TNP were later extended, in collaboration with the Government of Maharashtra, to the entire Dahanu taluka of Thane district in Maharashtra. This project (1987-1990) covered all the secondary schools in the Dahanu region, which was selected on the basis of its high percentage of tribal population (65.69% of the total population (1981 census)). The preliminary study of career choices of socio-economically backward students was thus extended to the Dahanu area with a broadened scope.

The motivation for undertaking the work reported in this thesis, and the details of the thesis are presented below:

Motivation

With the universalization of elementary education, educational opportunities are, in principle available to all sections of society. Also, with the present day linking of occupations to educational performance, the role of education has acquired greater importance in social life. Theoretically, with the passage of laws prohibiting discrimination in employment on the basis of sex or caste grounds, all occupations and career avenues are open to all sections of the society. However, lack of information regarding requirements of professions can pose a barrier to entry into many professions, even in the case of those who possess the requisites. As a group, this is more likely to happen in the case of SC/ST students, who very often are first generation learners and do not get the necessary support or guidance from their families. The uninformed families are not aware of the full implications of the governmental policies of providing positive discriminations through reservations of jobs (in public sector organisations) and in institutes of higher learning. This communication gap often results in students being advised to cash their educational achievements too soon and in the wrong channels.

In spite of the governmental reservations, the situation is not very

satisfactory for the SC/ST students. Many reserved seats in institutes of higher education or in the field of employment either remain vacant, or are availed off essentially by those sections of the scheduled castes/tribes which are slightly better off, or are more aware of the facilities than the rest. With respect to sex the situation is even more disturbing. Regardless of caste distinctions, few women are employed in professions with high status, such as, managerial positions, judiciary and decision making administrative positions, while those occupations which do employ more women, such as, teaching in elementary schools and nursing, do not have high status. With respect to educational achievement, girls are equivalent, if not superior to boys. In order to be allowed to continue in education, a girl often has to prove her merit. In spite of the equivalence in academic performance, the same equivalence is not seen in occupational or career development of girls.

One of the reasons for the lack of equivalence mentioned above, is premature and incorrect selection of careers, or the familial tendency to conform to outdated social norms. Thus, understanding the phenomenon of career selection among adolescents, the factors which influence these selections and the availability of vocational guidance based on an understanding of social realities were considered essential to understanding sex and caste biases in career selection.

Objectives of the study :

1) To study the prevailing career choices of students in the Dahanu

region and how these choices develop and crystallize from childhood to adolescence.

2) To study the factors involved in the making of career choices, such as, socio-economic background of the family, parental influence, home environment for literacy and information, sex and caste of the individual, awareness of vocations, prestige of vocations and stereotyping of occupations as suitable or unsuitable for the sexes.

3) To study the effect of intervention, in the form of provision of vocational guidance, on the career selection of girls.

Organisation of the Thesis

The thesis is divided into six chapters. Chapter 1, presents the background of the problem of occupational selection among socio-economically deprived groups. It also describes the motivation underlying the study of this problem as well as the social implications and relevance of occupational selection to the educational system. This chapter also presents the scope and limitations of the problem. The relevant literature in this field is also reviewed.

Chapter 2, describes the methodology of the study. The variables of the study are defined. The design and development of the scales used for occupational classification, and socio-economic status scaling are presented. The

experimental design of the study aimed at studying the effects of intervention is explicated. The choice of samples, and the various data collection tools such as the questionnaires aimed at learning about the factors considered important for career selection and the interview schedules for the understanding of the career choices of the students are explained in the chapter. The treatment of data and the statistical techniques used for analysis and their appropriateness to the data are also discussed.

Chapter 3, describes three factors considered relevant for career selection, which have been studied in some detail. These three factors are: i) the awareness of occupations among students ii) the prestige ranking/rating of occupations by students iii) the stereotyping of occupations with reference to sex roles by teachers and students. The results of the analysis of these factors with variables of sex of the students, caste membership and academic performance indicate that awareness of occupations in terms of number of occupations known does not vary with any of these factors. However, the kinds of occupations known to girls and boys, and members of SC/ST groups or non SC/ST members are different. Similar findings were uncovered with relation to prestige rating and ranking of occupations. Sex-role stereotyping of occupations by teachers and students was uncovered and it was seen that students held the stereotypes more strongly than teachers.

Chapter 4, presents the career choices of students and the

developments in career selection from childhood to adolescence. It also presents how the variables, such as, sex, caste, socio-economic background of the family, the home background of literacy and awareness, and the parental influences are related to career selection. The familial influence on career choices was learnt to be the strongest influence on career selection as compared to other factors like personal preference and financial background of the families. The present status of availability of vocational guidance from families and schools is also discussed.

Chapter 5, presents the encouraging results of an intervention study with respect to the provision of vocational guidance to girls on career selection. The study shows that efforts aimed at providing guidance coupled with information for increasing awareness in girls prompts them to opt for higher career choices. Even though the study was limited to a small sample, it is felt that the implications are relevant.

Chapter 6, summarises the major findings of the study and states the various limitations of the study. The thesis concludes by suggesting a few relevant issues in the field of education and work which need further exploration.

Statements required by the University:

1) Statement regarding the discovery of new facts.

This thesis presents an explanation of the important process of occupational selection, along with explication of the various factors affecting the process. The development of occupational choices from childhood to adolescence is also presented. The comparison of occupational choices as well as the factors affecting them in different groups such as girls and boys, SC/ST and Non-SC/ST students and having differing academic performance, is also conducted. An intervention study aimed at learning the effects of provision of vocational guidance on occupational choices was also conducted.

The following aspects of the thesis are new to the best of our knowledge:

a) The tools developed for the collection of data, i.e., the questionnaires and interview schedules for:

   i) learning the factors that affect occupational choice and

   ii) learning the occupational choices of students, the changes in them and the influences on them.

b) The scale for measurement of socio-economic status in socio-economically deprived groups. Though other scales do exist, this is specifically relevant for the study.

c) The important findings that occupational choices are formed and changed as a result of *parental influences* more than as a result of financial considerations or on the basis of personal preferences.

d) With reference to sex-role stereotyping of occupations, it was seen that both teachers and students stereotype occupations as suitable or unsuitable for the sexes. Students hold more stereotypes than teachers.

e) Awareness of occupations, in terms of number of occupations known does not significantly differ across sexes, caste membership (SC/ST and Non-SC/ST), or academic performance of students. However, kinds of occupations known did differ by sex and caste membership. Occupational prestige differed among girls and boys and SC/ST and Non-SC/ST students.

f) The findings of the study on intervention indicated, that provision of vocational guidance results in greater change in the 'upwards' direction in the experimental group of students as compared to the control group.

In short, the work tries to explain occupational selection in socio-economically deprived sections of society, with respect to the factors that play an important role in career selection. The findings of this study would be useful to research workers in this field, and for educational planning in terms of the provision of vocational guidance to students of socio-economically backwards section of society, for accurate occupational selection.

2) Statements indicating the sources of information, etc.:

The work described in this thesis was carried out under the guidance of Prof. V.G. Kulkarni. The collaborative project with the Government of Maharashtra aimed at improving science education in the Dahanu taluka of Thane district was one of the ongoing activities of HBCSE from 1987-1990. This project was extremely useful to me, in the sense that it made available and easily accessible a large sample of teachers and socio-economically backward students.

The entire work of this thesis, including planning, formulating tools for data collection and the conceptual and statistical analysis of the data was done independently by me. In administering the questionnaires, I was helped by my colleagues Shri R. M. Bhagwat, Smt. A. R. Mogre, Smt. S. A. Ladage, Kum M. P. Manchekar and Shri A. T. Mavalankar. In data entry I was assisted by Shri A. T. Mavalankar and Shri N.D.Deshmukh. The intervention study was done by me independently.

a) References have been made at the appropriate places in the main body of the thesis, wherever works of other people have been used. The rest of the thesis may be claimed to be original.

b) I, hereby declare that for the thesis which I am submitting no degree, diploma or distinction has been conferred on me by this or any other University.

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CHAPTER 1

INTRODUCTION

1.1 Background

The Homi Bhabha Centre for Science Education (HBCSE) has been undertaking action research projects aimed at improving scholastic achievement in general, with a specific emphasis on identifying the difficulties faced by first generation learners in school. The motivation underlying these projects arises out of the conviction, that differences in educability of groups of people, whether on the basis of socio-economic status, sex or any other socio-cultural factor, are not a result of biology nor are they insurmountable. The low academic performance of first generation learners who are essentially students belonging to the socio-economically deprived sections of society, is due to pedagogic, linguistic and conceptual difficulties faced by them. HBCSE scientists believe that it is possible to design and test remedial measures to overcome them. This philosophy is explicated in section 1.2.

Two action research projects, in the past have been based on the philosophy mentioned above. The first project (1975-78) was undertaken in schools around Khiroda, a rural area in Jalgaon district in the state of Maharashtra. This project aimed at identifying pedagogic, linguistic and behavioural difficulties faced by the first generation learners at school, and at designing specific remedial

measures. A related aim was the generation of a field-tested pedagogy based on the remedial measures designed to overcome identified difficulties. The project accepted factors like, infra-structural facilities in typical rural schools, qualifications of teachers, quality of text-books and the nature of examinations as inoperable. It aimed at motivating teachers to adopt the pedagogy incorporating the remedial measures by making them aware of the difficulties faced by their students. This project was limited to primary and middle school, that is, the standards I to VII (age 6 to 13).[1]

The second project called the 'Talent search and nurture among the underprivileged' (TNP) was started in 1980-81. The project was conducted at the HBCSE premises located in the Nana Chowk Municipal Secondary School, Grant Road, Bombay. Students participating in the project belonged to the scheduled caste/tribes (SC/ST) and were selected from the secondary schools of the Bombay Municipal Corporation (BMC). This project aimed at understanding the learning difficulties encountered by socio-economically deprived students at the high school level (grades VIII, IX and X), and at designing remedial measures to overcome these identified hurdles. The project which covered science, mathematics and English, also aimed at testing whether the scholastic performance of socio-economically deprived students could be boosted significantly.[2,3]

Both these projects met with a fair amount of success. The teachers in the Khiroda project did adopt the new pedagogy and paid special attention to first generation learners in their classroom, which resulted in a substantial

improvement in the quality of teacher-pupil interaction. The second project, showed that the scholastic achievement of SC/ST students could be improved, not marginally but substantially. It also showed that the remedial measures designed to overcome learning hurdles were often simple and easily implementable. These results were taken note of by the government of Maharashtra which led to a collaborative project between the government of Maharashtra and HBCSE. This project aimed at testing whether the remedial measure developed by HBCSE scientists on a limited scale and under controlled experimental conditions could be incorporated in the normal teaching of a typical school teacher, and whether doing so would lead to better performance in science and mathematics. This project was implemented in the Dahanu taluka of Thane district of the state of Maharashtra and was aimed at covering all the eighteen secondary schools in the taluka. Dahanu taluka was selected primarily due to the fact that it has a large concentration of scheduled tribe population (66% according to the 1981 census). Details of this project have been reported elsewhere.[4]

These projects raised a relevant and complementary question, that is, how does the improved scholastic achievement benefit students? Scholastic achievement, especially at the secondary school level is not an end in itself. It is the foundation on which students build their academic or occupational careers. Career choices and home-background are some of the social aspects of education. The social aspects of education are often ignored in programmes aimed at boosting scholastic achievement, which concentrate merely on imparting of certain

skills to teachers and students. When improving education one has to keep in mind that the education is seen by the community as fulfilling a certain purpose. Thus, the community, its customs and expectations, determine the objectives of education. At the same time, education has a potential for bringing about change in the perceptions of the community. The study described in this thesis arose out of a desire to understand the total impact of programmes aimed at boosting scholastic performance. As a first step it was decided to study the career aspirations of students as well as the home background of students and its conduciveness to education.

1.2 Statement of the problem

The objectives of the study were:

1) To study the process of career decision-making and the factors affecting such decisions, among scheduled caste and tribe (SC/ST), and Non-SC/ST students, and girls and boys, with emphasis on three factors identified for detailed study, namely,

    a) awareness of occupations

    b) prestige of occupations

    c) and sex-role stereotyping of occupations.

2) To undertake an experimental study in terms of provision of vocational guidance to a group of girls and to assess the effects of intervention with an appropriate control group.

The study was conducted in the Dahanu taluka, and concentrated on secondary school students. A pilot study had been conducted in Bombay 1985-86, and details of the pilot study are presented in section 1.8.

1.3 The hypotheses

The hypotheses to be tested in the study conducted in Dahanu were the following:

1) SC/ST and non-SC/ST students do not differ significantly from each other with respect to:

a. awareness of occupations, in terms of number of occupations known.

b. awareness of occupations in terms of number of different *kinds of occupations* known.

c. the mean ratings of different occupations in terms of the prestige of occupations.

d. the ranking of different occupations in terms of the prestige of occupations, based on the ratings.

e. the stereotyping of occupations on the basis of sex.

2) Girls and boys do not differ significantly from each other with respect to:

   a. awareness of occupations in terms of number of occupations known.

   b. awareness of occupations in terms of number of different *kinds of occupations* known.

   c. the mean ratings of different occupations in terms of the prestige of occupations.

   d. the ranking of different occupations in terms of the prestige of occupations, based on the ratings.

   e. the stereotyping of occupations on the basis of sex.

3) Students of differing academic performance do not differ significantly from each other with respect to:

   a. awareness of occupations in terms of number of occupations known.

   b. awareness of occupations in terms of number of different *kinds of occupations* known.

4) Students do not stereotype occupations as suitable or unsuitable for the sexes.

5) Teachers do not stereotype occupations as suitable or unsuitable for the sexes.

6) Male and female teachers do not differ significantly among each other, with reference to the stereotyping of occupations by sex.

7) Teachers and students do not differ significantly in terms of stereotyping of occupations according to occupational suitability.

8) The experimental and control group of students in the intervention study do not differ significantly with reference to the direction of the changed choices.

1.4 Rationale and Significance of the problem

Work plays a central role in one's personal life. It is critical in determining income, health, self esteem, social relations, the quality of life and the environment one can provide for one's family, including the chances of one's children to enter particular occupations.[5] Work is basic to the ways in which human beings deal with the problems arising out of a scarcity of resources. At a basic level work can be defined as the carrying out of tasks which enable people to make a living in the environment in which they find themselves. The term is now reserved for participation in economically productive activity, and this leads to many persons such as housewives, children, the retired and the unemployed, being termed 'non-workers' who may often work harder than the workers.[6] Work and employment are often taken to be virtually synonymous but are not. Employment poses a contractual relationship between employee and employer, and

provides the mechanism whereby production and consumption are related. Work does not necessarily involve this exchange and refers mainly to productive activity.

The term 'occupation' refers to the major work activity in which one engages at a given time, whereas 'career' refers to a sequence of work activities, or occupations over a period of time. In this study, the terms occupation and career have been used as synonyms, though they are not. The term 'occupational choice' is a commonly used label for the particular field of inquiry dealing with the entry of young people into the world of work. This term is unfortunate since it implies that entry into occupations is the result of careful and systematic considerations of the alternatives available and that the distribution of persons in occupations is the result of a cumulation of several personal decisions. However, personal decisions are, in fact only one of the several variables affecting the way a person faced with concrete alternatives chooses his/her options. 'External' social influences and institutions play a crucial role in channelling people towards certain occupational streams and thereby affecting the overall distribution of persons between occupations.[7]

A study of the social factors influencing occupational selection is essential as these often shape the motives and preferences of individuals. In this study, three social factors were identified as relevant to occupational selection, namely, the awareness of various careers/occupations among students, the prestige of career and the sex-role stereotyping of occupations by students and teachers.

The term 'prestige' is not the same as status, or social position and can be said to "represent the subjective value granted to the perceived cluster of habits, objects and expectations associated with the statuses of a given position".[8] In most communities. certain occupations are looked up to while certain others may be looked down upon. In this study it was considered important to learn whether caste/sex differences affected awareness and prestige rating of occupations.

Sex-role stereotyping of occupations is an issue of great importance. The term 'sex-roles', refers to the set of behaviours and characteristics that are typical of, and are considered appropriate for men and women, while 'sex-role stereotyping' refers to consensual beliefs about these characteristics.[9] Sex-role stereotyping underlies many sex differences in occupational selection.

Among the educational tasks of the school is the provision of knowledge about occupations and career planning. The consideration of the effects of sex-role socialization on the decision-making process in conceptualizing career choice is often missing. In the context of the Indian educational system, the education of girls has become a matter of priority and concern. However, "it is believed that women must basically be educated to be good wives and mothers.....it is also believed that they must accept that they will by and large remain home-makers and mothers and that their education should therefore be geared for the fulfilment of these functions... The outlook of teacher educators on this issue is very important because it is this outlook which will be communicated to future teachers".[10]

A great deal of debate concerning environmental and biological determinism (B-D) of the differences in terms of intelligence, educability and scholastic aptitude, between groups of people such as, the sexes, races, castes or classes has been conducted. B-D is a theory which holds that social and economic differences between human groups arise from inherited inborn differences. The argument of this theory is that, there are genetic differences between groups and individuals (which no one denies). These differences among individuals or groups can be characterised as superior or inferior, or can be ranked according to a scale of social value. The placement of individuals in society is based on these characteristics and hence is just. Society and its inequalities are merely a reflection of biology.[11,12]

The above argument is incorrect mainly because differences between individuals cannot be defined in terms of social value. According to Beteille "the idea of natural inequality is inherently ambiguous if not a contradiction in terms. Differences between individual or groups become inequalities only with the application of scales which are not given to us by nature but are constructed by human beings under historical conditions".[13]

It is in the field of education that the claims of B-D have been most influential, and it is here that they must be discussed and reflected upon. The results of research in this field are by and large inconclusive. The critics of B-D generally aim all their efforts at showing up defects in the experimental procedures used by the determinists. On the other hand environmentalists have

not been able to prove their case either. According to Rose, Lewontin & Kamin, environmentalists face a severe handicap in that they do not prescribe to simplistic explanations of human existence, making the task of devising experiments more complex.[14]

As a first step, in education it is essential to spread the message that biological determinism has not been able to prove its case conclusively.[15] This is mainly to inform and educate teachers who otherwise carry along beliefs that girls, SC/ST students and students belonging to low income groups, are biologically destined for certain positions in society and hence need education accordingly. Secondly, if teachers themselves hold some stereotypes about students, they have to be made aware of them, especially the fact, that these stereotypes are communicated to students through teacher-pupil interactions. This is even more essential in the Indian context, where both sex and caste have traditionally played a crucial role in determining careers.

1.5 Review of literature

Occupational choice, according to Theodore Caplow, has two theoretical limits. At one extreme is the absence of choice as the occupation done by an individual is determined by his fathers' occupation. The other extreme of occupational selection refers to the rigid allotment of occupations on the basis of rigourous testing of individual characteristics.[16]

The first condition existed in India, where occupations were passed on from father to son and acquired the character of family occupations. For girls there was no choice of occupations, as they worked only within the four walls of the home (acquired through birth or marriage) or sometimes as agricultural labour.[17] The situation began to change with industrialization, emergence of nuclear families, increased mobility of individuals/groups and due to formal education. Thus, occupational choice became possible as many new and diverse non-traditional occupations started becoming available. The nuclear family made it possible for women to work outside the family and contribute to the family income.[18]

According to Betz and Fitzgerald, the field of vocational psychology and career development began with the publication of Frank Parsons' book 'Choosing a vocation' which introduced the matching men and jobs approach to career choice. Thus vocational or career psychology is over 80 years old.[19] Occupational choice, viewed as a subjective process has been studied since 1950. Ginzberg .et. al, view occupational choice as a developmental process, which extends over a long period of time and can be divided into developmental stages. The first stage in career selection occurs during the ages of 6-11 years (early childhood to puberty). In this stage, the child thinks about occupation only in terms of their wish to be grown-up. Thus, the choices are often spectacular. These interests are transitory and are often unrelated to the potentials and capabilities of the individual.

The second stage is termed the phase of 'tentative choices' and occurs between the ages of 11-17 years (early adolescence). In this stage the individual takes into account his potentials but choices are very subjective and the link between the individual's potentials and his interests is weak.

The final stage of occupational choice is termed the 'Realistic period' and occurs in the ages of 17 and above. During this period planning for the future takes into account both self-knowledge and the opportunities offered by the environment.

The last two stages are further sub-divided into other stages. It is unlikely that all individuals pass through each of these stages in a set manner. The theory ignores the aspect of crystallization of choice occurring in isolated cases at any age. Thus, musically gifted children in musically-oriented families crystallise choices as early as at the age of five. In general, age of making decisions depends upon cultural norms rather than individual motivations.[20]

Another theory of career development put forward by Super states that people strive to implement their self concept by choosing to enter the occupation seen as most likely to permit self expression. This theory maintains that career development conforms to the general principles of human development and the stages of career development can be compared to the life stages of 'growth, expioration, establishment, maintenance and decline'. Super agrees with the concept of increasing realism as proposed by Ginzberg. According to Super the stages of career choice are: Crystallization (age 14-18) specification (18-21);

implementation (21-24); stabilization (24-35) and consolidation (35+).[21]

Various factors affect career selection such as, 'individual differences', interests, mass-media, socio-economic status, age and sex of the individual.

Individual differences affect career selection since characteristics of individuals are linked to requirements of careers. No two individuals are totally identical, they differ in physical/mental abilities, interests, aptitudes, as well as several other physiological and psychological characteristics. Just as individuals differ so do occupations in terms of the requisites of each.

Interests, affect career selection, as they motivate and lead individuals to opt for certain fields. Besides individual differences and preferences, also influence career selection. Rigid parental pressures, expectations and demands often determine the career choices of their children.

The *mass-media* play an important role in disseminating information about various occupations. In the process, they associate various occupations with glamour, which often influences career selection.

The *age* at which occupational choices are made, has a great deal to do with the kind of choices that are possible. If occupations are inherited, the choice may be said to take place at birth. If occupations are allocated rationally on the basis of aptitude and interest, the allocation can scarcely take place before adolescence.

Sex is considered as an important factor affecting career selection. With respect to sex, the field of vocational psychology has been focussed primarily, on the career development of men. Interest in the vocational behaviour of women is a recent phenomenon. The earlier studies attempted to differentiate and describe, home-making versus career-oriented women. This variable has low utility, as more and more women plan to pursue both career and family roles. One of the major approaches, to describing the 'nature' of women's career choice, has involved the classification of preferences/choices according to the degree to which they were traditional or non-traditional for women. Rossi (1965) was among the first to suggest the utility of differentiating career-oriented women, into those engaged in traditionally female careers, that is, occupations in which women predominate. Women pursuing pioneer or non-traditional occupations have been defined as role innovators.[22]

Sex-role stereotypes with respect to occupations, or the normative views of the appropriateness of various occupations for males and females have been the subject of study. In a classic study (1975), Shinar asked college students to rate 129 occupations, as masculine, feminine or neutral on a sevon point scale, where 1 was masculine and seven feminine. 'Miner' was rated as the most masculine (1.0), while nurse (6.6) and receptionist (6.3) were rated as most feminine occupations. Besides adults, children also stereotype occupations as appropriate for males or females, at a very early age. Gettys and Cann (1981) found that children as young as two and a half years, were able to distinguish

masculine and feminine occupations. Tremaine and Schau (1979) found that pre-schoolers, identified and agreed with adult occupational stereotypes.[23]

Children's occupational preferences tend to be consistent with the occupational stereotypes they hold. Both boys and girls tend to choose sex-typed occupations (Tremaine and Schau (1979)). The smaller number and more limited range of traditionally female occupations, results in a limitation of girls' perceived options at a very early age.

With respect to intervention aimed at checking the situation, career counselling or vocational guidance, have not been very successful. Research reveals that, rather than widening women's options, career counselling often limits women's choices and tends to reinforce traditional vocations. Schwartz (1975) investigated bias among guidance counsellors by asking them to make occupational recommendations for intellectually superior male and female students. She found that low ability level and female role occupations were significantly more often recommended for female students. Rohfield (1977) investigated the recipients of career counselling. Of her high school sample of women, 13% reported that counsellors had actively discouraged them from non-traditional goals, while 25% reported that some counsellors said that some jobs were for men and others for women.[24]

1.6 Definitions of important terms

1. **Occupational Choice**: It is a decision-making process usually extending over several years, in which the individual decides upon a specific job/occupation on the basis of his needs, interests, abilities etc.

2. **Awareness of Occupations**: Total number of occupations known over all the categories of occupations, or within a category of occupation.

3. **Prestige of Occupations**: The desirability of an occupation in terms of its status in the community. Prestige of occupations is operationally defined as, the students' rating of an occupation on a 5-point scale from 1 (least prestigious) to 5 (most prestigious).

4. **Sex-role Stereotyping**: It is a set of beliefs shared by members of a particular group concerning the various roles and activities considered appropriate for men and women.

1.7 Scope and Limitations of the study

The research problem aimed at studying the links between the career choices and the background of the individual. Thus, sex, caste, academic performance and socio-economic status were the independent variables of the study. One part of this study was conducted with teachers and students and thus, being a teacher/student was also an independent variable. Beside career choice,

factors relevant for career selection, such as, awareness of occupations, prestige of occupations and sex-role stereotyping of occupations were the dependent variables. The relationship between the independent and dependent variables was studied.

The research design was primarily a sample survey design, however a pre-post intervention experiment was also conducted to test the effectiveness of vocational guidance provided to a batch of girl students. Two control groups and an experimental group were used in the study of intervention. Data was collected by means of questionnaires administered to teachers and students and interviews of students. The intervention was provided after the career choices of students were learned through interviews, and included elements of motivation for undertaking careers offering more challenges along with information about unconventional as well as conventional careers.

In order to measure the socio-economic status (SES) of individuals in this region, a SES scale was developed for this study, whereas classification of career choices was done by modification of existing scales. The data was analysed by means of statistical test of hypotheses.

The limitations of the study were in the region of sample selection and problem delineation. The study was limited to students studying in the secondary schools, that is, VIII, IX, Xth standards, in Dahanu taluka, a largely rural area. The experimental study was conducted only with girls and the intervention was only with reference to students. Parents/families of the students

were not covered by the intervention or in the interviews about career selection. This is a limitation of the study as parental influence on career selection is considerable. However, it was not possible to cover all aspects of an issue for a doctoral thesis.

Career selection is influenced by many sociological, psychological, economic and educational factors. These factors all work in an integrated manner and not independently as single factors. Therefore, studying the influence of any individual factor by controlling all others is very difficult. Being aware of this fact, a few factors and a few independent variables were selected and studied in detail.

1.8 The Pilot study

The sample for the pilot study comprised thirty-five of the forty students attending the 'TNP' sessions AT HBCSE in 1985-86[25,26]. All the students were studying in class X, which is the final year of schooling, and were due to appear for the final school leaving examination, called the Secondary School leaving Certificate examination, or SSC. Sixty-nine percent of the sample were boys (24/35), while thirty-one percent (11/35) were girls. The mean age of the students was 16 years. Data-collection was done by means of interviews of students. An interview schedule was prepared which covered the demographic background of the students, their childhood career choices and the choices held at the time of the interview, called 'intermediate career choices'.

The interviews were conducted in two phases, that is, before the SSC examination and after the results of the SSC examination were out. The second phase of interviewing aimed at learning what the final career choices of the students were, now that they had information with regard to their academic performance and had also taken a few steps regarding their future, such as, continuing education, opting for vocational training or taking up a job.

The findings of the pilot study were as follows:

1) Parental education and occupational background were low, with 69% of mothers and 29% of fathers having nil to primary education, and 79% of fathers engaged in blue collar work.

2) The childhood career aspirations of respondents were extremely ambitious and a majority of the childhood career choices were professional occupations.

3) The career choices varied with the sex of the respondents.

4) The childhood career choices changed at the intermediate and final stage. In a majority of cases, the changed choice was lower than the original choice. Table 1.01 depicts career choices over the three stages.

Table 1.01

Career choices over the three stages

Choices	Childhood %	Intermediate %	Final %
Professional	88	63	29
Clerical	6	20	60
Semi-skilled	-	11	9
Other	6	6	3
Total	100	100	101

Table 1.01 indicates that professional choices decreased over the three stages from 88% in childhood to 29% in the final stage, while clerical choices have increased from 6% in childhood to 60% in the final stage. Each and every choice was compared over its changed counterpart to indicate the direction of change. Table 1.02 presents the direction of change of the changed choices at the two stages.

Table 1.02

Direction of change of the final choices

Direction of change	Final stage as compared to childhood %	Final stage as compared to intermediate %
Upwards	7	9
Horizontal	21	32
Downwards	71	59
Total	99	100

Table 1.02 demonstrates, that the direction of change in the final as compared to the childhood or intermediate stage, is downwards in a majority of the cases.

5) Familial influence, was cited by more students (41%) as a reason for change in choice as compared to finance (One student, 5%). Table 1.03 presents the reasons stated by students as having affected their choice.

Table 1.03

Reasons for change of choices

Reason for change	No. of respondents	%
Increased awareness	2	9
Interest in something else	1	5
Failure	4	18
Low marks	1	5
High marks	1	5
Low marks & family	3	14
Family	6	27
Finance	1	5
Others	3	14
Total	22	102

Table 1.03 also indicates that academic performance in terms of high and low marks was also stated as often as familial influence in changing choices.

6) Majority of students stated that they had inadequate information with regard to the careers chosen by them in terms of the requirements of those careers.

With this background, the extended work in Dahanu was undertaken. The next section presents a general picture of Dahanu.

1.9 Background Information about Dahanu

Background information about Dahanu is presented in the following sub-sections with reference to, the location and physical features, population, communication, economic background, rural or township and educational background.

1.9.1 Location and physical features

Dahanu taluka is situated to the north of Thane district, and is at a distance of about 125 kms from Bombay. The total area covered by the region is about 960 sq.kms. The boundaries of this region are as follows: From Bordi, the northern end of Dahanu taluka, to Chinchani, the southern end, the distance is about 40 kms. From Suryanagar at the eastern end, to Dahanu town proper at the western end, the distance is about 35 kms. The map of Dahanu taluka is provided in fig 1.01 (pg.24). Dahanu taluka has two distinct physical features (i) A coastal strip, along the western coast about 5 kms wide and 35 kms long. The coastal strip running from Chinchani to Bordi is adorned with coconut plantations. (ii) Hilly area in the rest of the region which consists mainly of forests and paddy fields.

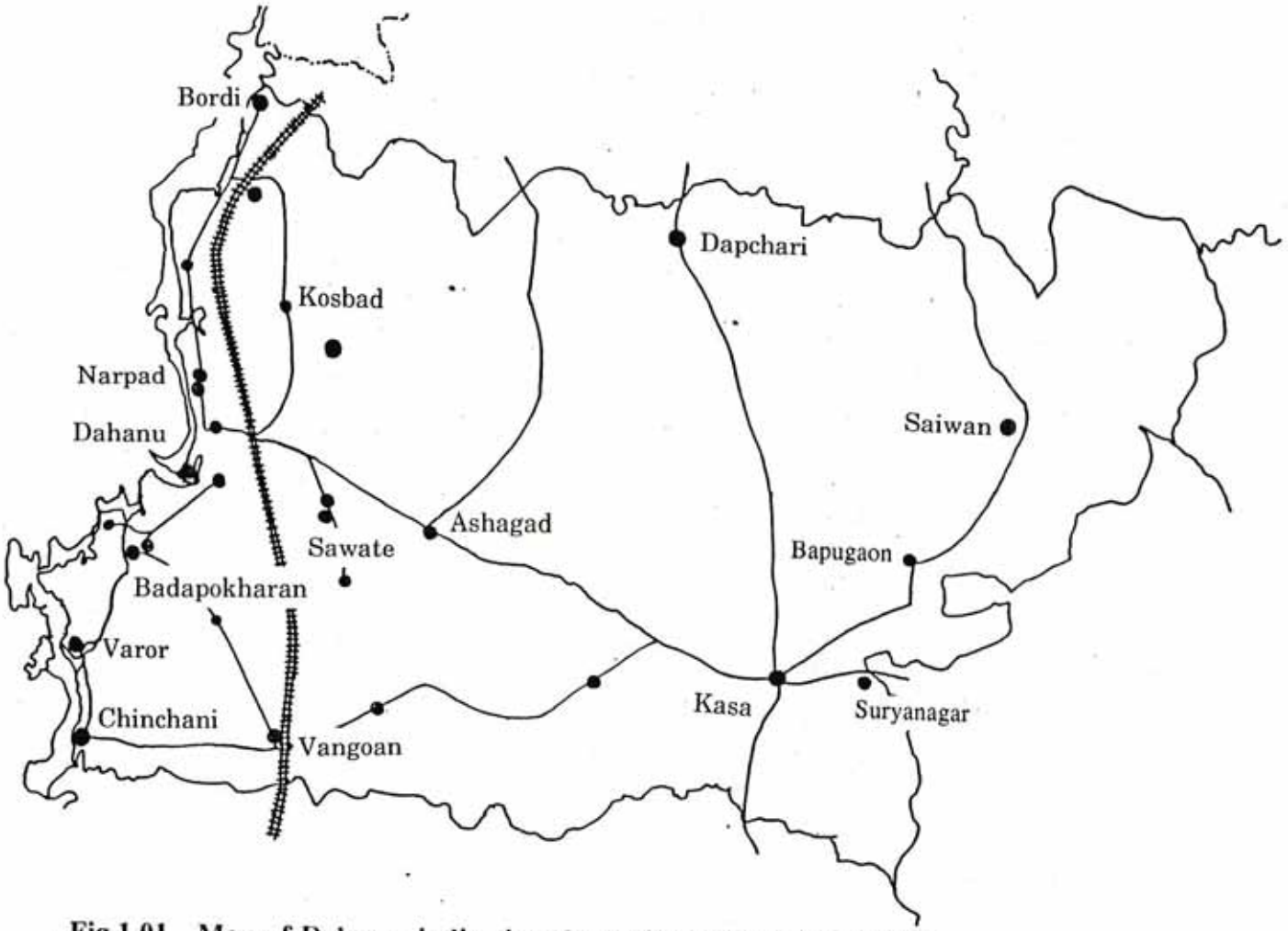

Fig.1.01 Map of Dahanu, indicating the regions where the eighteen secondary schools are located

1.9.2 Population

According to the 1981 census, the population of Dahanu taluka was 2,22,241 of which 93 percent was rural (2,06,575), and 7 percent was urban (15,666). The number of males was 1,12,535 and females 1,09,706. Thus, there are approximately 975 females per 1000 males.[27] The distribution of the population according to SC/ST and Non-SC/ST categories is as follows:

TABLE 1.04

Population in Dahanu taluka

SC Population	3467	1.56%
ST Population	1,45,990	65.69%
Non-SC/ST Population	7,2784	32.75%
Total Population	2,22,241	100.00%

Thus, the total scheduled tribe population is approximately 66% of the total population. The major scheduled tribes in the area are the Warlis, Malhar Koli, Thakur, Kathodi, Kokna and Mahadeo Koli. The Warlis are the largest tribal group comprising 45% of the total ST population.

In comparison with Thane district the population figures of Dahanu taluka are divergent. Thane district had a ST population of 21.76% in 1981 in comparison to Dahanu's ST population of 65.69%. The sex ratio of the district, that is, the number of females per 1000 males is 883 in comparison to 975

inDahanu. The literacy rate in Dahanu taluka was lower (27.59%) in comparison to the literacy rate in Thane district (63.60%).

1.9.3 Communication

Dahanu taluka is connected to Bombay both by road and railway. The Western Express Highway (Bombay-Ahmedabad) passes through Dahanu taluka. Many villages are connected by good roads. State transport buses go from Dahanu town to almost all the places in the region. A ferry service from Dahanu port to Dahanu Bundar on the southern side of Dahanu creek caters to the communication by sea. Dahanu Bundar also caters to the fisheries trade along the coast.

Postal services are available in a number of villages while telegraph and telephone services are available in places like Dahanu town, Chinchani, Bordi, Charoti, Kasa, Dapchari, Vangoan etc. Radio and television sets are common in many village households. Newspapers are available at railway stations, S.T bus depots and many major places.

1.9.4 Economic background

Agriculture and fishing are the main and traditional occupations of this region. Along the coastal strip, garden crops (cash crops) are cultivated in small plantations of mango, chikku, coconut and betel-nut, while the rest of the district is dominated by paddy and nagali (a local cereal) crops. Fishing is carried

on along the coastal strip from Bordi to Chinchani. The fishing trade is dominated by Non-SC/ST castes e.g., Koli, Mangela and Bari. The adivasi population is engaged mainly in agriculture, usually as agricultural workers. There are large economic disparities in the region which are generally along caste/tribe lines. The traders and large landowners in the region being upper caste, while the scheduled tribe/caste persons being either very small land owners or agricultural labourers. A lot of work on what is called 'creating awareness' of the existing disparities has taken place in neighbouring talukas, especially, Talasari, which also has a history of labour movements. These activities have had marginal influences in the Dahanu region.

For adivasis living in the forest area, collecting wood, grass, honey and other forest products is the main activity. Production of fodder is a widespread activity in the hilly parts of Dahanu. A large dairy project exists at Dapchari where milk is collected from adivasi families for purposes of processing and distributing to Bombay. Under this dairy project many tribal families have been given cows and buffaloes to ensure a livelihood.

Growth of industries in this region has been very slow. A few industries have come up near Dahanu town but the contribution of these industries to the economic growth is not very significant. However, the Tarapur Atomic Power Station (TAPS), at Tarapur, near Chinchani has influenced the development around Chinchani. Boisar industrial area developed by Maharashtra Industrial Development Corporation (MIDC), though not situated in Dahanu taluka has

influenced economic growth in both Chinchani and Vangoan area by providing job opportunities and scope for small scale industries and trades. The residential colonies along Boisar-Chinchani Road also have had an influence on the commercial activities in this region.

Chinchani and Badapokharan are also famous for the small scale industry of die-making (making of casts/moulds). These dies are used by goldsmiths for making ornaments of various designs. Chinchani-Tarapur, the twin towns are also known for the traditional bangle-making industry.

Dahanu town, being a taluka place has many government departments and offices. It is also the main centre of the forest department. A big timber depot is situated at Dahanu where timber trade is an important means of collecting revenue. Along with government offices, banks, hospitals and schools also provide various job opportunities.

Dahanu town and Chinchani are prominent market places and trade flourishes in these towns. Bordi, Narpad and Dahanu are also sea-resorts which attract large numbers of tourists. Thus, new hotels and restaurants have been opened recently in Dahanu, Narpad, Chinchani and Bordi.

With the increased activities, traffic by rail and S.T bus has also increased. This has provided opportunities for local people for plying auto-rickshaws in and around Dahanu, Bordi, Chinchani, Kasa and Gholwad. Construction of a dam on the Surya river has given rise to the colony at

Suryanagar and this has influenced the activities around the colony. The canals from the Suryanagar Dam have influenced agricultural growth in the Dahanu region.

Dahanu taluka is mainly a rural area. There are six towns having a population of more than 5000, namely, Dahanu, Chinchani, Bordi, Gholwad, Kamwad and Malyan. Chinchani has the largest population of 9500. There are 166 villages in the region of which 66 villages have population between 1000 and 4000, and 93 villages have population of less than 1000. The distribution of villages with respect to population is given in table 1.05.[28]

TABLE 1.05

Population distribution of villages

Population	Number of villages
0-1000	93
1001-2000	49
2001-3000	11
3001-4000	6
4001-5000	1
5001-10000	6
Total	166

Almost seventy-five percent of the villages and towns have electricity and drinking water. Half of the villages have communication by S.T buses and five villages have railway stations. All villages are connected by roads.

In Dahanu town all kinds of medical facilities are available, including hospitals and nursing homes. Besides Dahanu town, 37 other places

have some kind of medical help available, like, a dispensary or a primary health centre. Besides the towns, weekly markets are held at seven more villages.

1.9.5 Educational Background

Dahanu taluka is mostly hilly, forest area. The villages are situated in remote areas and are sparsely inhabited. The means of communication between villages were inadequate till 1970. Seventy percent of the rural population belongs to scheduled tribes. These factors have contributed to a comparatively slow growth of education in Dahanu taluka. Comparative figures of secondary educational growth from 1951 to 1991 were available for Dahanu and two neighbouring regions, that is, Palghar and Vasai.[29] Table 1.06 presents these figures of the three neighbouring talukas.

TABLE 1.06

Growth of education in terms of number of secondary-schools, students and teachers

Taluka	Year	No. of secondary schools	No of secondary school teachers	No. of secondary school pupils
Dahanu	1951	4	59	1200
	1961	5	102	2600
	1971	11	187	4076
	1981	14	251	6572
	1991	19	315	9670
Palghar	1951	4	38	800
	1961	8	87	1800
	1971	19	372	5989
	1981	26	429	11359
	1991	31	621	19015
Vasai	1951	5	69	2000
	1961	11	183	5000
	1971	23	379	11398
	1981	25	619	19275
	1991	39	871	29550

Table 1.06 indicates that of the three regions, Dahanu has the least number of secondary schools. The number of teachers and students in secondary schools is also lower in Dahanu as compared to Palghar or Vasai. The table suggests that growth in education in over a half century has been very slow in Dahanu. In 1951, Palghar was behind Dahanu in terms of the number of teachers and students in secondary schools. However by 1971, Palghar had overtaken Dahanu in terms of secondary education.

In spite of the slow growth of education, it is certainly commendable that every village in Dahanu taluka has the facility at least of primary education. With respect to primary education Dahanu has a sizable

number of schools (224 in 1991). However the ratio of high schools to primary schools is low. The growth of secondary schools in this region has been extremely slow. From four, in 1951, the number of secondary schools has grown to only eighteen in 1981. Of these eighteen, ten schools are concentrated on the small strip of land between Bordi and Chinchani.

There are three well-known secondary schools in Dahanu taluka, which have had the distinction of celebrating their Diamond jubilees. They are, K.L. Ponda High School, (Dahanu town), S.P.H. High School, (Bordi) and K.D. High School, (Chinchani). All the three schools are situated in beautiful surroundings with ample grounds and beaches in front of them. These three schools have higher secondary classes in Arts and Commerce, while Chinchani and Bordi have Science sections also. Besides these three schools, there are fifteen other high schools in the area. Detailed information about them is given in sub-section 1.8.6. There is no facility for higher education in Dahanu taluka. The nearest college is at Palghar. There is a centre for education and research in agriculture, at Kosbad, which is part of Konkan Krishi Vidyapeeth. The centre at Kosbad has facilities for graduate and postgraduate education in agriculture. There is also a D.Ed college at Kosbad for primary teachers. Facilities for training in Nursing exist in a few hospitals. The school at Bordi also has agriculture as one of the vocational subjects. It also gives technical and industrial training. Another school which provides this training is at Vangoan.

In connection with Kosbad and the teacher training college there, the work of Tarabai Modak and Anutai Vagh must be mentioned. Tarabai Modak worked at making pre-primary education non-formal in nature, and for the upliftment of tribals. She began her work at Bordi and continued it at Kosbad where the 'Gram Bal Shiksha Kendra' (GBSK) was founded. Anutai Vagh the present director of the GBSK has been involved in it right from its inception. The GBSK has played an important role in the educational development of this region, and continues to do so, by training future teachers and motivating future students by its non-formal pre-school teaching.[30]

1.9.6 The school sample

In the HBCSE project all eighteen secondary schools of Dahanu were involved. The present study was conducted in some of these eighteen schools. Table 1.07 presents the names of the schools, address, number of teachers and supportive staff.

TABLE 1.07

The Secondary Schools in Dahanu

School	Place	Number of Teachers	Other Staff
1. K.L.Ponda High School	Dahanu	50	12
2. S.P.H. High School	Bordi	56	*
3. K.D. High School	Chinchani	29	9
4. J.M.Thakur High School	Vangoan	25	8
5. A.J.Mhatre High School	Narpad	22	6
6. Acharya Bhise Vidyalaya	Kasa	21	7
7. Vakil Model School	Dahanu	20	6
8. Saraswathi Vidya Mandir	Badapokhran	19	8
9. Ashramshala	Saiwan	14	3
10. Ashramshala	Ashagad	11	4
11. Vidyamandir	Dapchari	10	5
12. Nutan Vidyamandir	Varor	9	4
13. Ashramshala	Suryanagar	8	3
14. Suryanagar High School	Bapugoan	9	5
15. Madhyamic Vidyalaya	Kosbad	5	3
16. Madhyamic Vidyalaya	Savata	*	*
17. St. Mary's High School	Dahanu	*	*
18. National English School	Bordi	*	*

* data not available

These schools can be divided into categories on the basis of (a) the development of the region (b) the number of teachers (c) the facilities available e.g., library, good laboratory, sanitation facilities etc.

The three categories, on the basis of the development of the region were rural, semi-rural and semi-urban. Dahanu taluka does not have any place which can be said to be truly urban. Dahanu town, Bordi and Chinchani have comparatively larger populations (>5000) but they are not urban. The population

is less than 10,000. Both Chinchani and Bordi lack a railway station and bus services are not frequent. These two towns also lack other amenities (e.g., Hospitals). Hence, they are included in the semi-urban category.

The semi-rural category consisted of those areas which were not as remote as those which fell in the rural category. The semi-rural areas had occupations other than traditional ones, and had higher population than the completely rural areas.

The rural areas were remote, not easily accessible, had lower population and few occupational opportunities other than the traditional ones.

The schools were also categorised in terms of the number of teachers e.g., (i) Big schools (>= 50 teachers)

(ii) Average schools (>20 and < 50 teachers)

(iii) Small schools (<20 teachers)

Another way of categorising the schools was in terms of

1. Good amenities: Good building, grounds, laboratory, library and Sanitation facilities.
2. Average amenities: Small laboratory, library.
3. Poor amenities: No laboratory, library.

Table 1.08 presents the classification of these schools on the basis of the above three categorisation, that is, on the basis of region belonging to, size of school and amenities provided by the school.

TABLE 1.08

Categorisation of the schools in the rural region, with reference to size and amenities provided

Amenities\Size	Small	Average	Big
Poor	6	-	-
Average	1	-	-
Good	-	-	-

TABLE 1.09

Categorisation of the schools in the semi-rural region, with reference to size and amenities provided

Amenities\Size	Small	Average	Big
Poor	-	-	-
Average	1	1	-
Good	-	2	-

TABLE 1.10

Categorisation of the schools in the semi-urban region, with reference to size and amenities provided

Amenities\Size	Small	Average	Big
Poor	-	-	-
Average	1	-	-
Good	1	2	-

The tables 1.08, 1.09 and 1.10, indicate that schools in the rural regions are smaller and have poor amenities while schools in the semi-rural and semi-urban areas are bigger and have better facilities.

The secondary schools can be divided into two main categories, that is, 'day schools' and 'residential schools'. The residential schools are also of two kinds. The first kind is the 'ashramshala' where the students live in the classrooms. Bedding and boxes of the students are arranged along the walls of the classrooms. Three such ashramshalas exist in Dahanu taluka (Saiwan, Ashagad and Bapugoan).

The second kind of residential school is one which provides hostels for the students to stay in. There were three such schools (Kasa, Bordi, Kosbad).

1.9.7 The Students

From 16 of the eighteenth secondary schools of Dahanu, data was collected with regard to all the students studying in VIIIth, IXth and Xth standards (all the students in these standards during 1988-1989).[31] These data would give some indication of the student composition in Dahanu. Table 1.11 presents the sex and caste-wise analysis of the students.

TABLE 1.11

Sex and Caste-wise analysis of students

Sex\Caste	SC/ST	Non-SC/ST	Total
Boys	1254 (26%)	1940 (40%)	3194 (66%)
Girls	294 (6%)	1353 (28%)	1647 (34%)
Total	1548 (32%)	3293 (68%)	4841 (100%)

(percentages are with respect to the total number of students)

In all, data with regard to 4841 students was available. The table reveals significant information with regard to the condition of the education of SC/ST students. Since the number of SC students is negligible the information relates to mainly to the ST students.

The table indicates that SC/ST students are only one-third (32%) of the total number of school-going students, though the SC/ST population comprises two-thirds of the total population of the taluka. The situation with regard to SC/ST girls is even more critical. Of all students getting education SC/ST girls are only 6% while Non-SC/ST girls are 28%. An interesting fact to note is that more Non-SC/ST girls form the school going students sample than even SC/ST boys (26%).

The composition of the students who had appeared for SSC examinations in 1988-89 was studied in order to gain some information about their academic profile. Table 1.12 presents the number of students appearing for the SSC examinations in 1988-89.

TABLE 1.12

Number of students appearing for SSC in 1988-89

Sex\Caste	SC/ST	Non-SC/ST	Total
Boys	244 (23%)	436 (41%)	680 (64%)
Girls	60 (6%)	319 (30%)	379 (36%)
Total	304 (29%)	755 (71%)	1059(100%)

(percentages are with respect to the total number of students)

Table 1.12 indicates that in the total sample of students appearing for SSC, SC/ST girls form a very small group (6%), while SC/ST boys are 23% of the larger sample. Interestingly, Non-SC/ST girls form a larger component of those appearing for SSC (30%) as compared to SC/ST boys. The figures are comparable with the students sample presented in the preceding subsection. Table 1.13 presents the information with regard to number of students passing the SSC examination in 1988-89.

TABLE 1.13

Number of students passing the SSC examination in 1988-89

Sex\Caste	SC/ST	Non-SC/ST	Total
Boys	98 (17%)	284 (49%)	382 (66%)
Girls	17 (3%)	177 (31%)	194 (34%)
Total	115 (20%)	461 (80%)	576 (100%)

(percentages are with respect to the total number of students passing SSC examination in Dahanu)

Table 1.13 indicates that about 50% of all those who appeared for

the SSC passed. Of all those who have passed, SC/ST students comprise 20% with SC/ST girls comprising only 3% in comparison to 31% Non-SC/ST girls.

1.10 Summary

The above educational background of Dahanu forces one to think seriously about the following points:

1. The SC/ST population though much larger than the Non-SC/ST one, comprises a much smaller section of school-going children.

2. Though the male-female population is almost equally distributed in Dahanu (975/1000), percentage of school-going girls (34%) is much less than boys. The situation is even more grim in the case of SC/ST girls who comprise only six percent of the school-going girls. The ratio of school-going SC/ST girls to the total population is very small.

3. There is a primary school in every village in Dahanu, however there are very few high schools (18) and there is not even a single full-fledged college where one can complete one's graduation. Thus students have to travel out of Dahanu to complete their education.

The conclusion that can be derived from the above is that SC/ST students and SC/ST girls in particular, are not benefitting from the educational facilities which are available. On the other hand, Non-SC/ST students are able to take full advantage of the opportunities available.

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CHAPTER II

METHODOLOGY OF THE STUDY

2.1 Introduction

This chapter covers the methodology of this study and describes the process of sample selection and the statistical procedures used for analysis of data. Section 2.2 presents the nature and objectives of social science research in general, and specifies how far these objectives are fulfilled with reference to this study. Sections 2.1, 2.2 and 2.3 describe the research design, the sample selection and the tools used for data collection, while Section 2.4 describes the tools developed for analysis of the data, such as, the development of a scale to measure socio-economic status, and the scale of occupations. Section 2.5 describes the statistical analysis of the data.

2.2 The characteristics of social science research

Social science research is characterised by its being empirical, theoretical, cumulative, and non-ethical. The nominal goal of social science activity is the extension of knowledge about some parts of the society, while the specific goals are: *description, explanation* and in some cases *prediction.*[1] Description is basic to scientific inquiry. It is the classification of the range of elements comprising a given domain. Description is often seen as the least

difficult of the three specified objectives. However, description is essential for explanation and prediction of social issues. In explanation, some facts are placed in context with other facts in such a way that they illuminate the phenomenon under study. The study reported here had in view the objectives of description and explanation: the description is of career aspirations and of the relevant factors governing aspirations while the explanation is of the choices and reasons for them.

2.3 The procedure

The study deals with a sample of school-going children in Dahanu taluka of Thane district, in the state of Maharashtra in India. The design of the research, the method of sample selection, the tools for data collection and the analysis of data are presented in various sub-sections.

2.3.1 Research design

Research designs are the blueprints for studying social questions. Conventional research designs are: survey designs, case studies and experimental designs.

The research design used in this study is a survey design along with which, an experiment was conducted on the sample of interest. Surveys refer to the collection of information from a subset and extension of the findings to the universe. The advantages of survey designs are:

(i) accumulation of information at low cost.

(ii) generalizability is legitimate.

(iii) flexibility in permitting various data collection techniques, such as, observations, interviewing, and questionnaires.

However, survey designs are criticised for:

(i) their inability to establish adequate causal connections between variables.

(ii) being empirical rather than theoretical.

(iii) and in some cases, looking at particular aspects of people's beliefs and actions without looking at the context in which they occur.[2]

In spite of its limitations, the survey design was chosen to learn the occupational aspirations of students in the Dahanu region, with special emphasis on socio-economically backward students. The survey was conducted since the researcher was keen on conducting an experiment involving intervention. A baseline survey was therefore necessary, to design the details of the experiment. This thesis, therefore, consists partly of the survey attempted and partly of the field experiment. The field experiment involves the actual manipulation of conditions by the experimenter, in order to determine causal relations.[3] The experiment was aimed at testing the effectiveness of intervention in the form of provision of vocational guidance to students. Details of the experiment are provided in chapter V.

2.3.2 Sample selection and the universe

The study described in this thesis was conducted in Dahanu taluka of Thane district in the state of Maharashtra. The term 'universe' or 'population' refers to the complete set of measurements or observations about which the investigator wishes to draw conclusions, while the sample consists of a part of the universe.[4] The universe of this study was all the students studying in the higher secondary levels of the schools of Dahanu. Dahanu taluka has eighteen secondary schools, catering to about 5,000 students at the secondary level (stds VIII, IX and X).

The sample of students studied in this project varied, because data collection was done over a period of four years from 1987 - 1991. Totally 161 students from eight schools in Dahanu were interviewed in order to learn about their career aspirations. Approximately 20 students from each school were interviewed. Of the total sample, 58% were boys while 42% were girls. The students were studying in the eighth (34%), ninth (31%) and tenth standards (35%). Forty seven percent of the sample were scheduled caste/tribe students (SC/ST) while 52% were Non-SC/ST students.

The systematic random sampling method was used to draw a sample of students for the interviews. There are four types of probability sampling, that is, simple random sampling, systematic random sampling, stratified random sampling and cluster sampling. A probability sample is characterised by the fact that every individual has an equal probability of being included in the

sample. Obtaining a simple random sample where every individual has an equal chance of appearing in the sample is difficult, mainly because for such sampling it is essential to have a list on which all the individuals in the population are listed once, so that through some mechanical procedure, such as, the use of random number tables, equal probability of selection is possible. Developing such a list is a difficult task, if not impossible, and therefore other methods of probability sampling are preferred. Systematic sampling is often confused with simple random sampling, but in this selection procedure one goes down a list and selects every K^{th} individual on the list after starting with a randomly selected case. In such sampling it is not necessary to have a single list of all the individuals. In this study, students were selected for interviews from each school from their roll numbers. Every 5^{th}, 10^{th}, 15^{th}, ..., student was selected, from eighth, ninth, and tenth standard, and interviewed. It was expected that this procedure would result in a representative sample of the universe.[5]

Besides interviews, many other students were administered questionnaires. These questionnaires were aimed at learning the relation of various factors associated with career choice, such as, awareness of vocation, (N=174) prestige of vocation (N=212) and sex-role stereotyping of vocations (N=141). Questionnaires were always administered, in classrooms, and thus, an entire classroom answered the questionnaire at any one time. Questionnaires were also administered to teachers e.g., the sex-role stereotyping of occupations by teachers (N=48). This questionnaire was administered to all the teachers who

participated in the orientation courses held by HBCSE for science and mathematics teachers, plus some non-mathematics/science teachers in order to balance the male/female ratio of teachers. There were fewer female teachers originally and hence female teachers other than those participating in the course were also included in the sample.

2.4 Tools for data collection

As mentioned above, interviews and questionnaires were used as the tools for data collection. As interviews were collected by more than one person, in order to standardise the questions asked, an interview schedule was developed and answers were written or checked as soon as the respondent answered the question. Care was taken to train all the interviewers with respect to the conduction of interviews.

The interview schedule had open ended questions so as to ensure flexibility of responses. The schedule merely outlined the areas of enquiry. Students were not asked these questions mechanically, rather, the schedule was used as a guide. The respondents were given considerable freedom to articulate their own understanding of the questions. A typical interview lasted for about 45 minutes.

Participation in the interviews was voluntary, that is, students could refuse to be interviewed. However, this did not happen in any case. Instead

students showed a remarkable interest and often interviewed the interviewers to learn about their background and reasons for conducting interviews. Co-operation from school teachers and the principals was excellent, probably because the researcher and the interviewers all belonged to HBCSE which was conducting a taluka-wide project in the area.

Students were interviewed in the language they were familiar with. Though the mother-tongue of most of the students was Marathi, there were a few students in this area who were more at ease with Hindi, rather than Marathi. These students were interviewed in Hindi, while the rest were interviewed in Marathi.

The interviews were not taped, but exhaustive records of the interviews were kept. The interview schedule used in Dahanu was developed from the earlier version used in Bombay by the researcher. However, this developed version was pre-tested in Dahanu on 40 students and modified wherever necessary.

The interview schedule was broadly divided into four parts.

1. Demographic Data: concerning the student, and his/her family.
2. Home Literacy Background: in terms of the education of parents, siblings, other family members, availability of reading material in the family. The interview schedule is presented in the appendix and details of it are described in chapter IV.
3. Childhood Career Choice (CCC): The existence of childhood career

choice, the nature of these choices, the age of decision-making, independence of choice, influence which determined these choices, and reactions of the family to the choices.

4. Present Career Choices (PCC): Changes if any from the childhood career choice, reasons for the change, future plans, awareness of the requirement of chosen career, sources of information, reactions of the family and problems anticipated in the fulfilment of the career choice. Ranking of PCC and CCC on a 10-point scale was also done.

The questionnaires used for learning about the factors affecting career decisions are also presented in the appendix, and the details of these questionnaires are covered in Chapter III.

2.5 Tools for analysis

2.5.1 Scaling of occupations

For the purpose of this study it was essential to have a scale for classifying occupations. This was necessary in order to make comparisons between, different occupational choices of the group of students, and between changes in occupational choice of individuals at different times. Several classifications of occupations are possible depending upon the interests and purposes of the researcher, since there is no inherent set of categories to which occupations belong.

Several classification systems used in the social sciences have both vertical (hierarchical) and horizontal dimensions. Classification of occupations follows this pattern. The concept of occupational structure is used by sociologists to refer to the pattern in society which is suggested by the distribution of the labour force across the range of existing types of work. Patterning may be sought by horizontal differentiating factors, such as, dividing the work force into primary (agriculture) secondary (manufacturing) and tertiary (service) sectors. Non-hierarchical grouping of occupations has led to the notion of occupational 'situs' which refer to the grouping of occupations differentiated from other grouping according to various criteria, other than, or in addition to ones which imply status or reward yielding capacity.[6]

Many researchers, however, point out that status criteria being all permeating, cannot be kept out of classification. It is, therefore, common for hierarchical structuring to be emphasised.

Three major vertical dimensions mentioned by Arthur Saltz in the 'Encyclopedia of Social Science' (1933) are

(i) the nature of operation performed in a job or the qualification needed for a certain occupation

(ii) the income yield that one derives from an occupation

(iii) the relative social prestige of the occupation[7]

Thomas L.G. (1956) suggested that these three dimensions could be separate indices of a single structure of occupations, as the three dimensions

are highly correlated. On this basis Super (1971) has developed a scale to classify occupations. The scale is as follows: Professional, Managerial, Commercial, Skilled and Semi-skilled occupations.[8] Another scale of occupations has been developed by Goldthorpe and Llewellyn (1977)[9], the groupings are as follows:-

Class I: higher grade professionals, administrators, managers, businessmen

Class II: low grade professionals, administrators, managers, high grade technicians

Class III: non manual, clerical, workers, sales personnel

Class IV : small proprietors, self employed

Class V: low grade technicians

Class VI: skilled workers

Class VII: semi-skilled and unskilled workers.

The scale given above has been adapted for this study with a few changes, the classes from I to IV are unchanged. Class V which was 'lower grade technicians' becomes 'skilled and lower grade technicians', Class VI which comprised skilled workers, is now made up of semi-skilled workers and Class VII which consisted of semi-skilled and unskilled workers now consists only of unskilled workers. The adaptations were made in order to differentiate between unskilled workers such as, agriculture labourers from semi-skilled workers such as, cook, tailor, driver etc.

This scale of occupations is used in this work to compare the different occupational choices of different groups, and the different choices of the same individual at different times. The scale has also been used in the measurement of occupational status. The classes are weighted differently from Goldthorpe and Llewellyn scale, which begin from the highest class (I) and move to the lowest (VII). In the scale used in this study, the movement is from the lowest class (I) to highest class (VII) so that it would facilitate statistical analysis. The final occupational scale is as follows:

0 indicated miscellaneous responses. The term 'miscellaneous' had to be coined to account for responses which could not be coded accurately and included the occupation 'housewife'.

1 referred to unskilled occupations, such as, labourers, peons, and domestic servants.

2 referred to semi skilled occupations, such as, tailor, driver, bus-conductors, etc.

3 referred to skilled occupations and low grade technicians such as, welders, electricians, carpenters, plumbers etc.

4 referred to proprietors of small scale enterprises and the self employed such as, the farmers, fisherman, shop-owners and building contractors.

5 referred to white collar clerical occupations.

6 referred to professions (ranked lower in comparison to 7) such as, police inspector, librarian, teacher, nurse etc.

7 referred to higher order occupations such as, medical doctor, lawyer, scientist etc.

2.5.2 The Socio-economic scale

Understanding the socio-economic status (SES) of individuals is important in understanding the significance of human adjustment to the external world. The measurement of SES involves the following assumptions:

(a) that society is stratified.

(b) status positions are determined by commonly accepted symbolic characteristics such as, education, occupation, income etc.

(c) that these characteristics can be scaled and combined using statistical procedures.

Ordinarily, the economic level is coupled with social status. But this is not always true, as for example, when some families have a high socio-cultural status but low economic level and vice-versa. The complex interaction between socio-cultural and economic structure of society has led to the use of multiple-item indices in the measurement of SES.

Among the scales for SES, many have been standardised in America. In India, the Socio-economic status scale for urban families by Kuppuswamy is a systematic scale which uses three variables, namely, education,

occupation and income.[10] Another scale for urban families has been prepared by Verma. In this scale details of information regarding the composition of the family, educational level of members, sources of income etc, were worked out and items were prepared.[11]

For rural areas a scale has been developed by Pareek and Trivedi. It is based on 9 items, caste of the family, occupation of the head of the family, education and social participation of the head of the family, land area owned by family, kind of house, farm power, material possession and kind of family.[12]

However, it was considered difficult to use these standardised scales as the respondents were children, and not the head of the family as assumed in the standardised scales. Also since the questions related to these variables could be answered by the students during the interviews, there would be no necessity of administering the scales.

A socio-economic level (SEL) scale developed by Ameerjan has three variables for measuring the SEL.[13] These three variables were parental education, rural-urban background and family income. The SES scale developed in this study also had three variables. These were parental education, paternal occupation and family income. Thus the two scales are similar except for one variable in each. Rural-urban background was not a significant variable in this study as Dahanu is a rural area, instead of this variable, Parental occupation was utilised as an indicator of socio-economic status.

Parental education was graded on a scale from 0 to 5 as follows:

0 No education

1 Primary education

2 Secondary education

3 SSC (school leaving examination at the end of grade X)

4 SSC + diploma or graduation

5 Post-graduation

A maximum score of 10 was possible on the variable parental education, if both the mother and the father were postgraduates.

Only the father's occupation (and not mother's) was used for measuring SES. Mother's occupation was not used in the calculation of the SES. A major reason for doing so was, that a large number of mothers in the sample were reported to be housewives. The category 'housewife' does not add much to the knowledge of the status of the family and hence, maternal occupation was not used in the measurement of SES unless, she was a widow or separated from her husband, and thus was the head of the family.

The occupations were graded from one to seven. This grading has already been discussed (section 2.5.1), with unskilled occupations graded 1 and higher order professions 7. An occupation was graded 0 if it was not stated or if it was the occupation 'housewife' in the case of mothers. Thus, the highest possible grade of parental occupation was 7.

Monthly family income was divided into four class intervals. These intervals were made after the data collection was complete, and the entire range of the total sample was known. A weightage of 1 was given to the lowest class interval and 2, 3 and 4 respectively to the next three classes. Thus, the highest score possible on familial income was 4.

The range of the SES scale was from 1 to 21, however, the range actually found in the sample was 1 to 19. For ease of analysis it was decided to have only three categories of SES, that is, low, average and high SES groups.

This categorisation was accomplished by using the method suggested by Trivedi and Pareek in categorisation of rural socio-economic groups. The sample was distributed into the three categories on the basis of the percentage of the sample falling in each category. It was decided that the low, and high SES groups would be 25% each of the sample, that is, the lowest and highest quartile while the average SES group would be the middle 2 quartiles.[14] The categorisation of the sample on the basis of such a classification is presented in table 2.01.

TABLE 2.01

Categorisation of the sample on the basis of SES scores

SES scale	The score range	% of the sample expected	Actual %
Low	1 - 5	25	26
Average	6 - 10	50	48
High	11 - 19	25	27
Total	1 - 19	100	101

From table 2.01 we see that the division on the basis of quartiles is not precise, but approximate, that is, 26 and 27 instead of 25, and 48 instead of 50. The approximation was accepted as the score ranges are integers, and selection of the next integer on the scale would disarrange the quartiles even more. On the basis of the quartiles, the score ranges of 1-5 for low SES, 6-10 for average SES and 11-19 for high SES were accepted.

2.5.3 Testing the validity of the SES scale

Validity is the most important characteristic of any scientific instrument. It refers to the degree to which an instrument measures what it claims to be measuring. Validity involves the correlation of a measure with some independent criteria, and it has three important properties. One, it is relative, that is, the validity of an instrument is not general but for a specific purpose. Thus, the validation of an instrument refers to the validation of the uses to which it is put. Two, validity is not a fixed property. With the discovery of new concepts, the earlier measuring instrument, may change in meaningfulness. Three, validity is a matter of degrees and not, an all or none property. Validity is also of three types, that is, content validity, criterion validity and construct validity. Content validity is the extent to which the contents of an instrument are judged as representative of some domain. Typically, expert judges examine the items and indicate whether the items measure some pre-determined criteria. Criterion-related validity correlates the performance of the instrument with related instruments.

Construct validity refers to the extent to which the constructs of theoretical interest are successfully operationalised. Construct validation involves a study of the meaning of the construct, and is done via either convergent or discriminant validation. For satisfactory construct validity, it is essential that the scale must correlate with other theoretical measures with which it is expected to correlate, and it is equally essential that it must not correlate with measures with which theoretically it should not. When a scale correlates with expected referents, is called convergent validation and when a scale correlates poorly with measures it should not, the process is called discriminant validation.[15]

In the validation of the socio-economic status scale developed in this study, its discrimination among known groups such as, the SC/ST and the Non-SC/ST students was considered as validity of the scale.

The rationale for this procedure was provided by the 'known-groups' method of establishing construct validity. In this method, groups of people 'known' to be different with respect to some characteristic are administered the instruments and differences are predicted. For the socio-economic status scale, a prediction was made that the scale would differentiate among SC/ST and Non-SC/ST students. Other existing SES scales often use caste as an indicator of social status with SC/ST groups receiving lower ranks and higher caste groups receiving higher ranks. Such a procedure was not explicitly undertaken, yet the scale does discriminate between the two groups (section 4.3.4 (a)) which validates it as a measure of socio-economic status.

2.6 Analysis of the data

The statistical treatment of data and computations were done on a PC-AT at the HBCSE, using the statistical package for social sciences (SPSS/PC+).[16]

A statistical hypothesis is a statement about one or more population distributions, with respect to one or more parameters.[17] Statistical hypotheses, are claims about the population, and are tested by means of appropriate statistical tests. The hypothesis is always a statement about the population and not about the sample. It is a statement that could be true or false. The hypothesis to be tested is the null hypothesis and is denoted by the symbol 'H_o'. The hypothesis is referred to as the null hypothesis as it is assumed true in generating the sampling distribution to be used in the test. The other hypothesis, which is assumed to hold in case the null hypothesis is false, is referred to as the alternative hypothesis and is often symbolised by 'H_1'. The null and alternative hypotheses are mutually exclusive and must be clearly stated before any statistical test of significance is attempted. The statistical test to be utilised depends entirely on these hypotheses.

Given the sampling distribution of the test statistic, a region of rejection is decided upon. The levels of significance are related to the region of rejection and indicate the probability of rejecting the null hypothesis. Experimenters and research workers for convenience, have chosen the 0.05 and

0.01 standards called 'levels of significance' which are most often used.[18] These significance levels have been used for the testing of any hypothesis in this study. A sample result falling into the region of rejection is said to be statistically significant.[19] As applied to the results of a statistical analysis, 'significant' is a technical term with a precise meaning, namely, H_0 has been tested and rejected according to a given decision criterion. It is quite possible for results to be statistically significant and yet unimportant or inconsequential. Non-directional alternative hypotheses are called two-tailed because H_0 will be rejected if the sample value is located in an extreme position in either tail of the sampling distribution. A directional alternative hypothesis specifies the tail of the sampling distribution.

The tests of significance used in testing hypotheses in this study were: the χ^2 test, the Z test, the t-test and the ANOVA or analysis of variance.

2.6.1 The Chi-square test of hypothesis

The chi-square $(\chi)^2$ test represents a useful method of comparing experimentally obtained results with those to be expected theoretically on some hypothesis. The Chi-square (χ^2) formula for testing agreements between observed and expected results is:

$$\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$$

f_o = frequency of occurrence of observed or experimentally determined facts

f_e = expected frequency of occurrence on some hypothesis.

The difference between observed and expected frequencies are squared and divided by the expected number in each case and the sum of these quotients is χ^2. Small differences between observed and expected frequency results in small values of χ^2 indicating that the experimental results are similar to expected ones.[20] Chi-square is evaluated using appropriate statistical tables where the value of χ^2 are compared with table values for given degrees of freedom at a certain specified level of significance.

A useful application of χ^2 is when one wants to investigate the relationship between traits/attributes which can be classified into categories, that is, nominal levels of measurement, e.g., SC/ST and Non-SC/ST students categorised with reference to high or low SES. The hypothesis to be tested is the null hypothesis. In this example, the null hypothesis states that membership in any SES group is independent of caste membership. The non-directional (two-tailed) alternative hypothesis would be that membership in a SES group is related to caste membership. The χ^2 test has been used when both the variables were of the nominal level. However, since the χ^2 always is a non-directional test of hypothesis other tests were used for laying claims about the direction of the hypothesis, e.g., the Z test which is also used for nominal level of measurement. This test is explained in the next section.

2.6.2 Tests of differences in proportions or means (Z test and t-test)

The Z test can be used when there are two binomial populations and one wants to test whether the proportion of some quantity is the same for both or if the difference is statistically significant (Nominal data). Z tests were used when the data was of a nominal level, e.g., categories of SES, academic performance etc. The formula for the Z test is as follows:

$$Z = \frac{p_1 - p_2}{\sqrt{\frac{p_1 q_1}{N_1} + \frac{p_2 q_2}{N_2}}}$$

p_1 = proportion of success (Sample 1), q_1 = proportion of failure (Sample 1) n_1 = number of cases (Sample 1)
p_2 = proportion of success (Sample 2), q_2 = proportion of failure (Sample 2) n_2 = number of cases (Sample 2)

The Student's t-test is a test for differences in means while the Z test is a test of differences between proportions.[21] The t-test can be used to test the differences between means of two populations. This implies that one variable can be of interval level. The assumptions made in order to use the t distribution are:

(i) the two sample are random;

(ii) the two populations have the same variance;

(iii) the two populations are normal;

If n_1, $\bar{X}_1$, and s_1, are the size, mean and s.d of sample 1 (with

population mean=μ_1 and s.d=σ_1) respectively, and n_2, $\bar{X}_2$ and s_2, are the size, mean, and s.d of a sample 2.(of size n_2 from a population with mean μ_2 and standard deviation σ_2, (with population mean=μ_2 and s.d=σ_2) respectively,

$$t = \frac{(\bar{X}_1 - \bar{X}_2) - (\mu_1 - \mu_2)}{\sqrt{S^2 \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

$$S^2 = \frac{(n_1 - 1) S_1^2 + (n_2 - 1) S_2^2}{n_1 + n_2 - 2}$$

Since under the null hypothesis it is assumed that the two population means are equal ($\mu_1=\mu_2$), the term $\mu_1-\mu_2$ in the above formula is zero. The variances of two populations are assumed to be equal (assumption iii) and thus the pooled variance s^2 is used instead of separate sample variances. (s_1^2 and s_2^2). The pooled estimate is a weighted average of the two separate sample variances. In order to obtain the pooled sample variance, one adds the sums of squares (deviations) and then divides the pooled sum of squares by the pooled degrees of freedom.

The pooled variance can be used only when assumption three is true. This assumption can be checked prior to usage of pooled sample

variance by using the F test. The F value is used to test the hypothesis that the two population variances are equal. The F value is the ratio of the larger sample variance to the smaller. If the significance of the F value is low, then the hypothesis that the population variances are equal is rejected and the 'separate variances t-test' for means is used instead of the 'pooled variance t-test'. The separate variance test is

$$t = \frac{(\mathbf{X}_1 - \mathbf{X}_2)}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

Where the data was of interval level, e.g., percentages or number of occupations known to two groups, the t-test was used. Even when the data was not strictly interval e.g., rating on a 5-point scale, the t-test was used, following Kerlinger who states that interval level statistics may be used with ordinal level data, but cautiously.[22]

2.6.3 ANOVA or the Analysis of Variance

ANOVA or Analysis of Variance represents an extension of the difference-of-means test and is used to test the relationship between a nominal (or higher order) and an interval variable. The assumptions of ANOVA are the same as those required for the difference-of-means test. The assumptions are normality, independent random samples, equal population standard deviations and the null

hypothesis that population means are equal. The test, however, works directly with variances rather than the means and the standard error of means. The ANOVA can be used to test more than two means at a time. The ANOVA estimates the weighted average of the variances within each of the separate samples (within conditions), and also estimates the common variance of the separate sample means treated as individual scores (between means). Instead of taking the difference between the two estimates, however, the ratio of the second estimate to the first is taken (F= between/within). If the null hypothesis is correct then both estimates will be unbiased and the ratio should be approximately unity. If the population means actually differ, the second estimate will be larger than the first, and a ratio greater than unity will result. The ratio F of the two estimates has a known sampling distribution, provided the two estimates of variance are actually independent of each other. The residual or interaction term measures the factor attributable neither to subjects nor trials acting alone, but rather to both acting together (interaction= SS_T-($SS_{Between}$ - SS_{within}))

Total sum of squares around the general mean	=	Sum of squares between means	+	Sum of squares within conditions	+	Interaction

Often, problems handled by ANOVA could be handled using difference-of-means test involving the t distribution, by using separate pair by pair comparisons when there are more than two means to be compared. In contrast to such pair-wise testing, the ANOVA is a single test of whether more than two

types of results (or any number) differ significantly amongst themselves or whether they come from the same population.[23] The ANOVA is advantageous in that a single test replaces many, for example, with 6 categories, 15 tests would be required and of these 15 if 4 were significant, conclusions become difficult to arrive at.

When there are only two categories to compare, then t and F are similar. The square root of F, having one degree of freedom in the numerator is the same as 't'. Thus, the same conclusions would be reached regardless of whether ANOVA or difference-of-means test are used in a two sample case. The ANOVA was used in this study when the data were of the interval type and also when it was ordinal for the same reason as has been mentioned earlier with the reference of Kerlinger.

2.7 Summary

In this chapter, the research methodology has been explained. The description of the sampling procedure and the tools for data collection has been dealt with in considerable detail. The statistical techniques used for the analysis of the data have been specified, while the development of a tool for analysis of data, that is, the SES scale has also been presented.

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CHAPTER III

FACTORS RELEVANT FOR CAREER SELECTION

3.1 Introduction

Factors relevant to occupational selection are presented with detailed analysis in this chapter. Three factors were identified as important for career selection. These were, awareness of occupations in students, the prestige of occupations according to students and sex-role stereotyping of occupations by teachers and students. Sections 3.2, 3.3 and 3.4 present information on each of the above factors.

3.2 Awareness of occupations

In order to make a decision and to select one's career, it is essential that individuals are aware of various available options. Most children are aware of some occupations from childhood. In order to learn what kind of vocational awareness exists among the students in Dahanu, a questionnaire on this topic was circulated to students from eight secondary schools of Dahanu.

The questionnaire was aimed primarily at learning the extent of vocational awareness of students. It simply asked the students to list the names of all the occupations that they knew. Some background information about the students was also collected. This questionnaire is presented in the appendix (Appendix A (I and II)).

3.2.1 Background information of the students

This section provides background information about the students in the sample, such as, the names of their schools, their age and sex, their scholastic performance, their religion, their caste or tribal membership and their parental occupations.

a. Schooling

The questionnaire was filled in by 174 students, studying in eight different schools. The eight schools are named in Table 3.01.

TABLE 3.01

Schools in which vocational awareness data was collected

Schools	Number of Students	%
Varor	6	3
Ashagad (Ashram School)	12	7
Bapugaon (Ashram School)	14	8
Saiwan (Ashram School)	18	10
K.L.Ponda	26	15
Narpad	26	15
Sunabhai Pestonjee	27	16
Kosbad	45	26
Total	174	100

The questionnaire was administered in eighth, ninth and tenth standards. Majority of the students (76% or 133) were from the eighth standard while 17% (30 students) were in the ninth standard and 6% (11 students) were from the tenth standard.

b. Sex

The sex distribution of the sample was unequal, there being more boys (111 or 64% of the sample) than girls (63 or 36% of the sample). There is no reason for there being a sex-wise unequal sample, as the questionnaires were distributed in classrooms, unless, an unequal distribution already exists in the classrooms. This aspect of there being fewer girls in secondary schools was brought out in table 1.11 (chapter 1). An interesting fact to note, is that when it was realized by the researcher that more boys than girls comprised the sample, efforts were made to include more girls in this sample. While this effort reduced the skewness of the sample, some imbalance did persist.

c. Age

The ages of the students varied between 10-19 years (one student each, of 10 years and 19 years). Seven percent of the sample did not state their ages (12 students). Of those who did state their ages, a majority lay between the age range of 13-16 years (67% of the sample). The mean age of the sample was fourteen, with a standard deviation of 1.5.

d. Religion and Caste/Tribe membership

A majority of the sample were Hindus (93%). The other religious represented in the sample were Muslims (3%), Jains (1%) and Buddhists (1%). Three percent of the sample did not answer this question.

The students were also asked to state the caste or tribe, of which they were members. Totally, 36 castes/tribes were named by the student. Six percent of the sample gave no response (or wrote in an indecipherable manner). The castes/tribes stated by larger number of students were:

TABLE 3.02

Major castes/tribes represented in the sample

Tribes/Castes	Number of students	%
Adivasi	9	5
Malhar Koli	9	5
Mangela	11	6
Bhandari	11	6
Kokna	23	13
Warli	40	23
Total	103	58

Some students did not specify which tribe they belonged to but merely stated 'Adivasi' or tribal. Ultimately, all the students were classified into three main categories, namely,

(1) Scheduled Caste or Scheduled Tribes (SC/ST)

(2) Non-scheduled caste/ Scheduled Tribe (Non-SC/ST)

(3) No response (missing).

Table 3.03 indicates the categorisation of students with respect to caste/tribe.

TABLE 3.03

Categorisation of the sample in SC/ST or Non-SC/ST groups

Category	Number of Students	%
SC/ST Students	86	49
Non-SC/ST Students	78	45
Missing Data	10	6
Total	174	100

From table 3.03, it is seen that the breakup of the sample in terms of SC/ST and Non-SC/ST students is approximately equal. Table 1.11 had shown that SC/ST students were 32% of the secondary school-going population.

e. Academic background of the Respondents

The academic performance of the students was judged from the percentage of marks received by the students in the previous academic year. The range of percentages reported was between 30%-82%, with a large number of students (64) or 37% of the sample not responding to this question. The case of non-responders is interesting, mainly because it is only academic performance, which has been consistently non-responded to by students (This was seen in the other questionnaires distributed in this study also). The major reason for not responding was stated as an inability to recall the percentage received. This appears to be a genuine difficulty. Personal contact revealed that while students remembered the aggregate marks scored by them, they were not aware of the percentage. Absence of response need not be interpreted harshly as reluctance to

respond. The mean percentage reported by the students was 54 with standard deviation 10.78. (the missing cases were not included for the calculation of the mean).

The sample was divided into 3 groups on the basis of percentages received. The three groups were low, medium and high academic achievers. The groups were created by the method of having around 25% in the low and high academic performance group and around 50% in the average performance group. Such a division would ensure a bell-shaped curve. Table 3.04 shows the break-up by means of academic performance.

TABLE 3.04

Categorisation of the sample on the basis of academic performance

Category	Number of students	%
Low academic performers (30%-46%)	27	25
Average academic performers (47%-60%)	57	52
High academic performers (61%-82%)	26	24
Total	110*	101

* 64 students did not state their percentage.

f. Parents' Occupations

Students were asked questions regarding the occupations engaged in by their parents. Farming was reported as *fathers' occupation* by 53% of the students. The category self-employed, included farming, and this category accounted for 62% of the paternal occupation. The other categories of occupation

reported as parents' occupations were 'clerical', 'semi-skilled', 'lower' and 'higher professionals'.

Regarding *mothers' occupation*, 'housewife' was the most commonly reported maternal occupation, (47% of the sample). Farming was the next largest mentioned category (30% of the sample). Table 3.05 presents the parental occupations with reference to the scale of occupations mentioned in Chapter 2.

TABLE 3.05

Occupations of parents with reference to the occupational scale.

Occupation	Mother		Father		Total	
	N	%	N	%	N	%
0. Missing(Including Housewife)	82	47	3	2	85	24
1. Unskilled	4	2	4	2	8	2
2. Semi-skilled	4	2	20	11	24	7
3. Skilled	2	1	6	3	8	2
4. Self-employed	68	39	108	62	176	51
5. Clerical	3	2	31	18	34	10
6. Lower Profession	4	2	1	1	5	1
7. Higher Profession	7	4	1	1	8	2
Total	174	99	174	100	348	99

3.2.2 Number of occupations known

The major part of the questionnaire was represented by one question, which asked the students to list (name) as many occupations as they could. The questionnaire provided seventy-four spaces to the students to name occupations, and on request they were provided with a second paper containing

74 spaces. Though students were given unlimited time to answer the questionnaire, students took around 35 minutes to complete the task.

The range of occupations listed by the students was between 6 and 88 occupations. The mean number of occupations mentioned was 34 with a standard deviation of 14.71. The mean was calculated by enumerating the number of occupations listed by students and dividing the total by the number of students. It is remarkable that students were able to report so many occupations (34), considering the fact that Dahanu is remote area, and sources of information, such as, books, newspapers are not easily accessible.

The mean number of occupations listed was analysed with reference to three other variables, namely, sex, caste and the academic performance of the respondents. It was hypothesised that the mean number of occupations listed was not related to the sex, caste or academic performance of the respondents. The detailed analysis and results are presented in this chapter in separate sections.

3.2.3 Types of occupations

A large number of occupations were listed by the students, (88 was the highest number listed). It was interesting to classify these occupations. Ten categories emerged. These categories were:

(1) Agricultural occupations, such as, dairy, poultry, cattle and sheep-rearing, growing of orchards and farming.

(2) Business and commercial occupations, such as, shopkeeper, restaurant owner and a seller of any kinds of goods.

(3) Managerial/Administrative occupations, such as, clerical occupations and government posts of revenue collector, tehsildar, mamlatdar etc.

(4) Skilled work, such as, electrician, driver, mechanic, photographer, etc.

(5) Glamorous careers, such as,

(a) artistic (sculptor, artist, actor, dancer, singer).

(b) political (Minister of legislative assembly/MLA, Prime minister/PM, Chief minister/CM).

(c) military (police, army, navy).

(6) Professional occupations, such as, teacher, scientist, doctor, lawyer, judge, engineer.

(7) Semi-skilled/traditional occupations, such as, potter, barber, carpenter, butcher, tailor, cobbler, goldsmith, persons engaged in embroidery, knitting, collecting forest produce, etc.

(8) Unskilled work, such as, labourer, porter.

(9) Miscellaneous occupations, the term refers to occupation which were very different and could not be placed in the above categories. Such occupations were those of being a robber, beggar, a student, doing sleights of hand, wearing disguises etc.

(10) Indecipherable, this category contained responses which were not decipherable.

Totally, 5936 occupations were listed by all the students (N=174). Of the ten categories, the occupations listed most often were *semi-skilled* occupations (1353 times) followed by *business* or *commercial* occupations (1292 times), *agricultural* occupations (727 times) and *skilled* occupations (652 times). The number of times an occupational category was listed is an indication of how familiar the students were with occupations in that category. One way of identifying occupations not known to many students, is to find the number of students who did not list even one occupation in that category, that is, the missing data for that category. Lastly, the mean number of times a category was listed, that is, the total number of times occupations within a category were listed, divided by the total number of students, gives some idea of the total sample's awareness of the occupations in the category. The mean in this context refers to the average number of occupations within a category listed by the students. Table 3.06 presents this data and the ranking of the occupational categories on the basis of the mean number of times the category was listed.

TABLE 3.06

The types of occupations reported by the students (N=174)

Category	Missing	Mean	Rank	Total number of times listed
Agricultural	2	4.18	3	727
Business	5	7.43	2	1292
Managerial	85	1.28	9	223
Skilled	21	3.75	4	652
Glamorous	59	2.52	5	439
Professional	30	2.51	6	436
Semi-skilled	3	7.78	1	1353
Unskilled	39	1.63	8	284
Miscellaneous	48	1.99	7	346
Indecipherable	94	1.06	10	184
Total	-	-	-	5936

Most students were able to list *agricultural*, *semi-skilled* or *business* occupation (missing less than 5). Almost half of the students (49%), were unable to state even one *managerial* occupation (85/174). The other occupations in which many students were not able to give several occupational titles were, unskilled occupations (22%), glamorous occupations (34%), and professional occupations (17% of the sample).

Table 3.06 reveals that the category 'Semi-skilled' has the highest mean ($\bar{X}$=7.78) followed by business occupations ($\bar{X}$=7.43) and agricultural ($\bar{X}$=4.18). The lowest means were associated with the categories indecipherable, managerial, unskilled and miscellaneous occupations. The analysis of the relationship between the mean number of occupations listed within a category and other variables, namely, sex, caste and the academic performance of the

respondents were computed. It was hypothesised that the mean number of occupations listed within categories was not related to the sex, caste and the academic performance of the respondents. The information about these variables is presented in section 3.2.4, 3.2.5, 3.2.6 and 3.2.7.

3.2.4 Relationship between sex and other variables

The relationship between sex and other variables was tested using statistical significance tests, in order to learn whether other variables vary with differences in sex.

a. Sex and Age

According to the ages stated by students, girls were younger than boys. Table 3.07 presents the mean ages of girls and boys in the sample.

TABLE 3.07

Crosstabulation of sex with age of the respondents

Sex of the Respondents	Mean Age	S.D
Girls (N=58)	14.05	1.37
Boys (N=104)	14.71	1.50

A one-tailed t-test for means was conducted on the differences in the mean ages of boys and girls. The t-value was significant at the 0.01 level of significance (t-value -2.77). Thus, *the null hypothesis of no relation between sex*

and age had to be rejected in favour of the alternative hypothesis that girls are younger than boys. One possible reason for girls being younger than boys is the fact that more girls studying in secondary schools (Table 1.11) and in the sample (Table 3.08) are Non-SC/ST students. In the sample of boys, more belonged to the SC/ST groups. SC/ST children join school later than Non-SC/ST children and this could result in the higher ages of boys.

b. Sex and Caste

A crosstabulation of sex and caste was conducted and the results are presented in table 3.08.

TABLE 3.08

Crosstabulation of Sex with Caste

Sex\Caste	SC/ST	Non-SC/ST	Missing	Total
Girls	18	44	1	63
Boys	68	34	9	111
Total	86	78	10	174

The chi-square value between attributes sex and caste was 25.45. This value is significant at the 0.00 level (two-tailed probability) indicating that the distribution of the sexes in the two caste categories is not equal. A one-tailed Z test on the proportion of SC/ST girls and boys had a value of 4.35 which was significant at the 0.01 level. This *lead to the rejection of the null hypothesis, that there is no difference in the distribution of the sexes in the caste groupings.*

Instead, the alternative hypothesis that there were fewer girls in the SC/ST category was accepted.

c. Sex and Academic performance

The academic performance of girls showed that girls had obtained lower percentages ($\bar{X}$=52) as compared to boys ($\bar{X}$=56). The one-tailed t-value of the differences between the two means was -1.95 with a significance level of 0.03. *This led to the rejection of H_o, which stated that sex is not related to the academic performance of students, and acceptance of H_1, that girls had obtained lower percentages than boys.*

d. Sex and number of occupations listed

With respect to the total number of occupations, girls listed a more occupations ($\bar{X}$=36) as compared to boys ($\bar{X}$=33). However, the one-tailed t-test shows that this difference is not statistically significant (t-value 0.97, probability of the t-value appearing through chance 0.17). Thus, *the null hypothesis that there are no differences in the mean number of occupations listed by members of either sex was accepted. It is important to note this point, that sex-wise there are no significant difference in the number of occupations known.*

e. Sex and kinds of occupation listed

The kinds of occupations listed by the sexes were analysed to study if girls and boys varied in this respect. This analysis indicated that there were differences in the number of occupations listed in a given category, by the girls and boys. Table 3.09 presents the various categories of occupations, the mean number of times the occupations were listed by girls and boys, the differences between the means of girls and boys and the significance levels of the calculated 't' t-values between the two sexes. The alternative hypotheses being tested were:

i) That the mean number of occupations within a category listed by girls were more than the mean number listed by boys.

ii) Boys have listed a higher mean number of occupations within the category as compared to girls.

TABLE 3.09

t-values of differences in the mean number of occupations within categories, listed by girls and boys ($N_g = 63$, $N_b = 111$)

Category	$\bar{X}_g$ Girls	$\bar{X}_b$ Boys	Difference $\bar{X}_g$-$\bar{X}_b$	t-value	One-tailed Probability
Agriculture	3.32	4.67	-1.35	-3.01	0.002*
Business	8.00	7.10	+0.90	0.81	0.209
Managerial	1.70	1.04	+0.66	1.96	0.027*
Skilled	4.48	3.33	+1.15	2.12	0.019*
Glamorous	2.89	2.31	+0.50	0.94	0.175
Professional	3.00	2.23	+0.77	2.63	0.005*
Miscellaneous	1.67	2.17	-0.50	-1.53	0.064
Indecipherable	0.97	1.11	-0.14	-0.50	0.309
Unskilled	1.81	1.53	+0.28	1.10	0.136
Traditional	7.68	7.83	-0.15	-0.20	0.422

* Significant at the 0.05 level.

The above table indicates, that girls had listed higher mean number of occupations for six out of the ten categories, while boys had a higher mean for four categories. The six categories for which girls were able to state more occupations than boys were, business, managerial, skilled, glamorous, professional and unskilled occupations. To test the significance of these differences one-tailed t-values were computed wherein *statistically significant differences were found for four categories of occupations.* Those categories which were statistically significant in terms of the number of times they were listed by the two sexes were *agriculture* (listed more often by boys), *professional, skilled and managerial* (listed more often by girls). Thus, girls stated more occupations in three categories as compared to boys.

3.2.5 Relationship between Caste and other variables

The relation of caste membership with other variables such as, age, sex, academic performance, number of occupations listed and kinds of occupation listed, was studied, in order to learn if caste membership was reflected in these variables.

a. Caste and Age

The mean age of SC/ST students was 14.20, (S.D = 3.84) and that of Non-SC/ST students was 12.65 (S.D = 4.16). Thus, Non-SC/ST students were younger than SC/ST students. The difference between the two means was tested

by the t-test for means and was found significant at the 0.00 level (one-tailed probability, t-value 2.47). *Thus, the null hypothesis of no difference in the ages of SC/ST and Non-SC/ST students was rejected, and the alternative hypothesis that SC/ST students are older than Non-SC/ST students was accepted.*

b. Caste and Sex

The classification of caste with sex of students as mentioned earlier, revealed that there were more girls in the Non-SC/ST groups. This implies that of female students more are from Non-SC/ST families, whereas among the male students' sample, more belong to SC/ST groups. Thus, SC/ST girls are still not attending schools in as many numbers as (a) boys in SC/ST groups (b) girls in Non-SC/ST groups. It is essential to keep in mind that this area is an area with a concentration of SC/ST population. According to the 1981 census, the ratio of ST population to the total population of Dahanu is 65.69 and the ratio of SC population to total population is 1.56.

c. Caste and Academic performance

The mean academic performance in terms of percentage of marks scored in the previous year, was lower in the case of SC/ST group (53%) than the Non-SC/ST group (55%). The difference between the means of the two groups being insignificant (t-value -0.88, one-tailed probability 0.19) *the null hypothesis that the mean academic performance of both groups is equal was accepted.*

d. Caste and number of occupations listed

The number of occupations stated by the two groups were different. The SC/ST students listed somewhat fewer number of occupations ($\bar{X}$=32) than the Non-SC/ST students ($\bar{X}$=35). This difference was tested for significance using a one-tailed t-test, with the H_1 that SC/ST had listed fewer number of occupations. The difference in the mean number of occupations listed was not significant (t-value -1.28, one-tailed probability 0.10). *Thus, the null hypothesis that the mean number of occupations listed by the two groups were equal was accepted.*

e. Caste and kinds of occupation listed

The number of times occupations within categories were listed, differed for the SC/ST and the Non-SC/ST group of students. Table 3.10 presents the mean number of times each category was listed by the two groups, the differences between the means of the two groups, the calculated t-value for the differences between means and the one-tailed probabilities of the t-values. The alternative hypotheses being tested were:

i) SC/ST students have listed a higher mean number of occupations in the category as compared to Non-SC/ST students.

ii) Non-SC/ST students have listed a higher mean number of occupations within the category as compared to SC/ST students.

TABLE 3.10

t-values of differences in the mean number of occupations in a category listed by SC/ST and Non-SC/ST students ($N_{SC/ST}$=86, $N_{Non\text{-}SC/ST}$=78)

Category	$\bar{X}_{1(SC/ST)}$	$\bar{X}_{2(Non\text{-}SC/ST)}$	Difference $\bar{X}_1$-$\bar{X}_2$	t value	One-tailed Probability
Agriculture	5.36	2.95	+2.41	5.36	.000*
Business	4.83	9.79	-4.96	-4.85	.000*
Manager	1.52	1.00	+0.52	1.84	.034*
Skilled	3.12	4.49	-1.37	-2.82	.003*
Professional	2.06	2.88	-0.82	-2.84	.003*
Unskilled	1.71	1.56	+0.15	0.57	.285
Miscellaneous	2.12	1.91	+0.21	0.54	.293
Indecipherable	0.97	1.10	-0.13	-0.46	.324
Traditional	7.45	7.97	-0.52	-0.70	.242
Glamorous	3.38	1.61	+1.77	3.32	.001*

* Significant at the 0.05 level

Table 3.10 shows that for five categories, the SC/ST group of students were able to list a higher mean number of occupations. These five categories were agricultural, managerial, unskilled, glamorous and miscellaneous. The remaining five categories were listed more often by the Non-SC/ST group of students. Business, skilled, professional, indecipherable and traditional (semi-skilled) occupations.

To test the significance of these differences, t-tests were used. *The differences between the means of the two groups for each category was significant in the case of six categories.* Of these six categories, three categories, that is, *agricultural, managerial and glamorous occupations* were listed more often by the SC/ST students. The three categories listed more often by the Non-SC/ST students were *business, skilled and professional occupations.*

3.2.6 Comparison between the variables: caste and sex

The mean number of occupations, and the mean number of kinds of occupations listed by the students varied with sex and caste. Since there were more members of one sex in a caste grouping, (girls in the Non-SC/ST group) an attempt was made to study, whether sex or caste was a more significant indicator of students responses. A two-way tabulation of the number and kinds of occupations listed by sex and caste of students was undertaken. Table 3.11 presents the mean number of occupations listed by the students and the breakup by sex and caste.

TABLE 3.11

Mean number of occupations listed by the students (analysed with respect to sex and caste of students)(N_g=62, N_b=102, $N_{SC/ST}$=86, $N_{Non\text{-}SC/ST}$=78)

Sex\Caste	SC/ST	Non-SC/ST	Total
Girls	35	35	35
Boys	32	36	33

Table 3.11 indicates that overall girls ($\bar{X}$=35) had stated more occupations than boys ($\bar{X}$=33) and Non-SC/ST students ($\bar{X}$=36) more occupations than SC/ST students ($\bar{X}$=32). The two-way tabulation indicates that Non-SC/ST boys listed the most occupations ($\bar{X}$=36). The lowest number of occupation were listed by SC/ST boys ($\bar{X}$=32). ANOVA (ANalysis Of VAriance) was performed on the number of occupations listed with sex and caste as independent variables in order to test the null hypotheses that:

1. there were no significant differences in the number of occupations listed by girls and boys.
2. there were no significant differences in the number of occupations listed by SC/ST and Non-SC/ST students.
3. the interaction between sex and caste in terms of number of occupations listed was insignificant.

Table 3.12 presents the ANOVA table for number of occupations listed with sex and caste as independent variables.

TABLE 3.12

ANOVA of number of occupations listed with sex and caste as independent variables

Sources of Variation	d.f	S.S	M.S.S	F ratio	Significance of F
Main effects	2	357.93	178.96	0.860	0.420
Sex	1	22.28	22.28	0.107	0.744
Caste	1	234.98	234.98	1.129	0.289
Interaction between sex and caste	1	122.49	122.49	0.589	0.444
Residual	160	33288.53	208.05	0.770	0.513
Total	163	33768.95	207.17		

The two-way ANOVA indicated that *the main effects were insignificant for the variables sex and caste and so was the two-way interaction between sex and caste*. Thus, with respect to total number of occupations listed, both sex and caste were insignificant explanatory variables.

Sex and caste-wise classifications were conducted with the mean number of occupations listed in different categories. The results are presented in Table 3.13 (Categories indecipherable and miscellaneous were considered irrelevant for all further analysis).

TABLE 3.13

Sex and caste-wise tabulations of the Means of the number of occupations listed in the different categories

Groups\Categories	Agri-culture	Business	Manager	Skilled	Profess-ional	Unskilled	Semi-skilled	Glamorous
I *Total*	4.21	7.19	1.27	3.77	2.45	1.64	7.70	2.54
Girls	3.32	**7.85**	**1.63**	**4.34**	**2.98**	**1.79**	7.65	**2.82**
Boys	**4.75**	6.78	1.06	3.42	2.13	1.55	**7.74**	2.37
SC/ST	**5.36**	4.83	**1.52**	3.12	2.06	**1.71**	7.45	**3.38**
Non-SC/ST	2.95	**9.79**	1.00	**4.49**	**2.88**	1.56	**7.74**	2.37
II *SC/ST*								
Girls	4.06	**6.28**	**2.33**	**3.72**	**2.22**	1.67	7.17	**4.83**
Boys	**5.71**	4.44	1.31	2.96	2.01	**1.72**	**7.53**	3.00
III *Non-SC/ST*								
Girls	**3.02**	8.50	**1.34**	**4.59**	**3.30**	**1.84**	7.84	**2.00**
Boys	2.85	**11.47**	0.56	4.35	2.35	1.21	**8.15**	1.12

From table 3.13, we see that in the total sample, girls listed a higher mean number of occupations in six occupational categories as compared to boys, who listed higher mean number of occupations for two occupational categories. Girls had listed more occupations for the categories, business, managerial, skilled,

professional, unskilled and glamorous occupations. Boys, however, had listed more occupations for the categories agriculture and semi-skilled occupations.

With respect to comparison between SC/ST and Non-SC/ST students, we see that SC/ST students stated a higher mean number for four categories of occupations (agriculture, managerial, unskilled and glamorous) while Non-SC/ST students listed a higher mean number of occupations for the other four categories, that is, business, skilled, professional and semi-skilled.

Within the SC/ST group of students five categories of occupations received higher means from girls' as compared to boys' who stated higher means for three categories. The only category which shifted from girls to boys (in SC/ST group as compared to all students) in terms of higher means listed (in SC/ST group as compared to all students) was that of unskilled occupations.

Table 3.13 shows that boys in the Non-SC/ST group listed fewer agricultural occupations while girls listed more occupations opposite set existed in the SC/ST group. Boys in the Non-SC/ST group listed more business occupations while in the SC/ST group, girls listed more business occupations.

In order to see the relationship of sex, caste and the interaction between the two, on kinds of occupations listed, ANOVA's were performed on the eight categories with sex and caste as independent variables. The null hypotheses to be tested were:

a) there were no significant differences in the mean number of occupations within different categories listed by girls and boys.

b) there were no significant differences in the mean number of occupations within different categories listed by SC/ST and Non-SC/ST students.

c) the interaction between sex and caste in terms of number of occupations listed in different categories was insignificant.

Table 3.14 presents the ANOVA table for the kinds of occupations listed with sex and caste as independent variables as stated before (2 categories, miscellaneous and indecipherable were dropped from analysis).

TABLE 3.14

F statistics for the two-way ANOVA of kinds of occupations, with sex and caste as independent variables

	Agri-culture	Busi-ness	Mana-gerial	Skilled	Profess-ional	Unskilled	Semi-skilled	Glamorous
Main Effects	14.67**	12.31**	5.64*	4.47*	6.18*	0.91	0.32	7.68*
Sex	1.44	0.68	7.89*	0.76	3.97*	1.48	0.16	4.64*
Caste	20.06**	23.58**	7.49*	5.49*	3.87*	0.96	0.63	14.69**
Interaction between sex and caste	3.17	4.47*	0.15	0.24	1.33	1.48	0.00	0.62

** $p < 0.01$
* $p < 0.05$

Of the eight categories for which the ANOVA was performed six categories of occupations had significant main effects. These six categories were, *glamorous occupations, business, managerial, skilled, professional and*

agricultural occupations. For all the six categories, caste was a significant variable, explaining the number of occupations listed in that category.

Of these six categories of occupations, interaction between sex and caste was significant for only one category, that is, 'Business occupations'. In this category both sex and caste jointly affected the number of occupations listed, that is, girls stated more occupations in this category and so did Non-SC/ST students. But among the Non-SC/ST students, boys stated more of business occupations, while within the SC/ST students, girls stated more occupations in this category.

Sex was an explanatory variable in three of the six categories, that is, professional, glamorous and managerial categories. In these categories girls had listed more occupations than boys. *Thus, overall caste membership is more relevant in explaining the number of occupations listed by students in different categories (6/8 categories) as compared to sex of the respondents (3/8 categories).*

3.2.7 Analysis of academic performance with other variables

Besides sex and caste, academic performance of the student was analysed, to study its relationship with other variables. Academic performance as stated earlier had three groups, (low, average, high). Thus, the analysis was done through the use of ANOVA (one-way analysis of variance).

Academic performance categorised as high, low and average was compared with the total number of occupations listed. Table 3.15 presents the

one-way ANOVA of the mean number of occupations listed by students with academic performance.

TABLE 3.15

One-way ANOVA of the number of occupations with academic performance

Source of Variation	d.f	S.S	M.S	F ratio	F probability
Between groups Within groups	2 107	91.65 23874.75	45.82 223.13	0.20	0.82
Total	· 109	23966.40			

The one-way ANOVA revealed that there were no significant differences in the mean number of occupations listed by the three groups which were varying on the basis of academic performance. With reference to the different categories of occupations and academic performances, the results of the ANOVA's are presented in table 3.16.

TABLE 3.16

F statistics for the kinds of occupations listed with academic performance

Sources of Variation	d.f	S.S	M.S	F ratio	Significance of F
Agriculture					
Between groups	2	13.89	6.95	0.97	0.38
Within groups	107	763.06	7.13		
Business					
Between groups	2	74.03	37.02	1.01	0.37
Within groups	107	3899.82	36.45		
Managerial					
Between groups	2	16.98	8.49	1.94	0.15
Within groups	107	467.21	4.37		
Skilled					
Between groups	2	21.68	10.84	1.01	0.37
Within groups	107	1150.17	10.75		
Professional					
Between groups	2	4.78	2.39	0.68	0.51
Within groups	107	375.43	3.51		
Unskilled					
Between groups	2	1.38	0.69	0.26	0.77
Within groups	107	285.38	2.67		
Glamorous					
Between groups	2	88.15	44.08	2.77	0.07
Within groups	107	1704.90	15.93		
Semi-skilled					
Between groups	2	17.55	8.78	0.56	0.57
Within groups	107	1678.30	15.69		

With reference to the kinds of occupations listed, there were no significant differences between the three groups of academic performers. Thus, academic performance was not related to a) total number of occupations listed and b) kinds of occupations listed by the respondents.

3.2.8 Summary

The null hypotheses (H_o) of no relation between the total number of occupations listed and the variables of sex, caste and academic performance were all accepted. This result implies that there are no significant differences between girls and boys, SC/ST students and Non-SC/ST students and students with low, average or high performance with reference to the number of occupation listed. The differences which exist between sex, caste groupings, and academic performance were all with the different categories of occupations.

3.3 Prestige of occupations

The discussion on prestige of occupations in section 2.5.1 suggests the need to study the prestige of occupations in the Dahanu region with reference to sex and caste of students.

For this study, it was relevant to know the following:

1. what is the perception of students with respect to occupational desirability/prestige?
2. are there any sex-wise differences in the occupational ranking?*
3. are there any sex-wise differences in the occupational rating?*
4. are there any caste-wise differences in the occupational ranking?
5. are there any caste-wise differences in the occupational rating?

* Rating refers to assigning importance to occupations on a five point

scale while ranking refers to arranging occupations on a hierarchical scale on the basis of the ratings. The latter was a secondary procedure undertaken by the researcher.

3.3.1 The Questionnaire

A questionnaire distributed to students, contained fifty occupations to be rated on a five point scale. On the scale, 1 stood for a very favourable attitude while 5 implied a very unfavourable attitude towards the occupation. The labels for each of the five ratings were adapted from the students parlance, an example of which is given below:

"Please rate the occupations below by ticking the appropriate column".

Occupation	Very Good	Good	Neutral	Not Good	Very Bad
Doctor	-	-	-	-	-
Servant	-	-	-	-	-

The occupations listed in the questionnaire (fifty) were selected from the occupations written down by students, when asked to write the names of occupations known to them. Of the many occupations received, those mentioned most often were used in the questionnaire. While no constraint of time was imposed, it was found that students filled the questionnaire in about 35 minutes. The questionnaire is presented in the appendix (Appendix B, I and II).

3.3.2 Background information about the respondents

Totally two hundred and twelve students, filled the questionnaire in an acceptable manner (in some cases where students had not understood the task and given one uniform rating to all the occupations the questionnaire was discarded). Sex-wise, the sample consisted of more boys (72%) than girls (28%), as in the case of vocational awareness. The sample was drawn from six schools out of the eight used earlier. Table 3.17 presents the areas where the schools are located and the sample from each.

TABLE 3.17

Schools from which the respondents for prestige measurement were drawn

School	Number	%
Saiwan	38	18
Kosbad	56	26
Kasa	41	19
Narpad	23	11
Bapugaon	36	17
Ashagad	18	9
Total	212	100

All the students were studying in the eighth standard of these schools. Age-wise the sample ranged from 11-17 years. The mean age was fourteen years, (S.D=1.14). With respect to religion, majority of the sample followed Hinduism (95%). There were also Muslims (1%) and Christians (1%). The remaining three percent of the sample had not answered this question. The languages spoken by the group were as follows: Marathi (85%), Gujrati (5%),

Hindi (2%), Adivasi (1%) and missing data (7%).

With respect to caste or tribe, totally 28 categories were mentioned and only 1% of the sample did not answer this question. The twenty-eight categories were divided into two main groupings, that is, scheduled caste/tribe (79%) and the Non-scheduled caste/tribe group (19%).

The parental occupation was classified in the same way as mentioned earlier (Section 3.2.1.6). The occupational categories for mothers and fathers of respondents are presented in Table 3.18.

TABLE 3.18

Classification of mothers' and fathers' occupation

Occupational Category	Father		Mother	
	Number	%	Number	%
Unskilled	10	5	4	2
Semi-skilled	5	2	1	1
Skilled	3	1	-	-
Agriculture	152	72	87	41
Business	11	5	10	5
Clerical	19	9	2	1
Professional	10	5	8	4
Housewife	-	-	92	43
Missing	2	1	8	4
Total	212	100	212	100

Table 3.18 indicates that respondents have stated that, with respect to occupations of mothers, 43% are housewives, and 41% are engaged in agriculture. Of the remaining, 8% constitute missing data, and 8% are spread over several categories.

About fathers' occupation, the agriculture category accounts for (72%) of the sample and of the remaining, 27% are spread over many other categories while 1% constitutes missing data.

3.3.3 Students' ratings of the occupations

The ratings given by each student to an occupation, was used to determine the average prestige value of the occupation. The weightages given to the opinions expressed were as follows: Very good (5), Good (4), Neutral (3), Not good (2), Very Bad (1).

Mean rating received by an occupation was calculated in the following manner. The sum of the weighted ratings given by all the students to an occupation was divided by the total number of students rating that occupation. Thus, when no rating was given by a student, the mean was calculated by deleting the missing cases. The occupations were ranked in the following way. The occupation which received the highest rating was ranked 1, the occupation which received the next highest rating was ranked 2, and so on, till all the occupations were ranked. When there were ties in the rating, that is, more than one occupation received the same rating, the occupations were ranked by adding all the concerned ranks and dividing by the number of ties, e.g., When Scientist and Farming received the same rating, instead of ranking both of them 10 or 11, 10+11 was divided by the number of ties, that is, 2, and the rank of 10.5 which emerged was given to both the occupations. Table 3.19 presents the list of

occupations, and the mean rating received by the occupation.

TABLE 3.19

The students' mean ratings and rankings of various occupations

Occupation	Rating of occupation	Ranking of occupation
Doctor	4.77	1
Sportsman	4.51	2
Engineer	4.50	3
Teacher	4.49	4
Lawyer	4.44	5
Painter	4.38	6
Author	4.33	7
Professor	4.23	8
Judge	4.20	9
Scientist	4.13	10.5
Farming	4.13	10.5
Manager	4.12	12
Soldier	4.10	13
Artist	4.05	14
Pilot	3.92	15.5
MLA	3.92	15.5
Sculptor	3.91	17
Horticulturist	3.89	18
Police Constable	3.85	19
Police Inspector	3.84	20
Sarpanch	3.83	21
Shopkeeper	3.82	22
Nurse	3.73	23
Talati	3.71	24
Postman	3.69	25
Mechanic	3.60	26
Secretary	3.59	27
Toymaker	3.58	28
Driver	3.50	29.5
Collecting forest products	3.50	29.5
Cooking	3.49	31
Restaurant-owner	3.43	32
Wireman	3.39	33
Goldsmith	3.29	34
Industrialist	3.25	35
Tailor	3.24	36
Mason	3.20	37
Taxi-driver	3.13	38
Fishing	3.05	39
Clerk	3.04	40
Peon	2.91	41
Basket-Weaver	2.78	42
Mill-worker	2.70	43
Potter	2.65	44
Grocer	2.48	45
Hawker	2.39	46
Cobbler	2.29	47
Domestic Servant	2.26	48
Laundry-washer	2.21	49
Porter	2.20	50

The students' ratings of various occupations on a scale of preference presented in table 3.19 shows some notable features. The occupations rated very high were doctor, sportsman, engineer, teacher, lawyer, painter, author, professor, judge, scientist. The occupations preferred least were those of porter, laundry-washer, cobbler, hawker, grocer, potter, mill-worker, basket-weaver, peon (all ranked below three), farming, manager, soldier, artist (all ranked above four). It is interesting to know that no occupation was rated below 2.20 or above 4.77, indicating that no single occupation is universally accepted or condemned.

3.3.4 Analysis of occupational prestige by sex

In order to learn if the occupational prestige varied by the sex of the respondents, analysis was done on the mean ratings of each occupation by boys and girls. Table 3.20 presents the mean ratings of each occupation by boys and girls, the difference in the ratings, the t-value and the significance of t. Students' one-tailed t-tests were administered to test the null hypothesis (H_o) that there were no differences in the rating received by an occupation from girls and boys, against the alternative hypotheses:

(H_1) that girls had rated the occupations higher than boys,

(H_2) that boys had rated the occupations higher than girls.

TABLE 3.20

The mean ratings of occupations by girls and boys, the differences in the ratings, the t-values and their significance

	$\bar{X}_b$	$\bar{X}_g$	$\bar{X}_b - \bar{X}_g$	t-value	One-tailed probability
Doctor	4.75	4.82	-0.07	-0.71	0.24
Sportsman	4.56	4.38	0.18	1.25	0.11
Engineer	4.48	4.56	-0.08	-0.61	0.27
Teacher	4.57	4.27	0.30	2.34	0.01*
Lawyer	4.38	4.59	-0.21	-1.75	0.04*
Painter	4.37	4.40	-0.03	-0.27	0.40
Author	4.29	4.44	0.15	-1.12	0.13
Professor	4.27	4.09	0.18	1.13	0.13
Judge	4.25	4.07	0.18	1.14	0.13
Scientist	4.14	4.09	0.05	0.25	0.41
Farming	4.17	4.00	0.17	0.91	0.18
Manager	4.14	4.07	0.07	0.41	0.34
Soldier	4.16	3.92	0.24	1.54	0.07
Artist	4.01	4.14	-0.13	-0.89	0.19
Pilot	4.02	3.65	0.37	1.92	0.03*
MLA	3.90	3.96	-0.06	-0.34	0.37
Sculptor	3.76	4.28	-0.52	-3.16	0.00*
Horticulturist	3.89	3.87	0.02	0.10	0.46
Police Constable	3.86	3.81	0.05	0.29	0.39
Police Inspector	3.84	3.83	0.01	0.05	0.48
Sarpanch	3.76	4.00	0.24	-1.69	0.05*
Shop-keeper	3.80	3.85	-0.05	-0.30	0.38
Nurse	3.43	4.51	-1.08	-7.17	0.00*
Talati	3.74	3.62	0.12	0.77	0.22
Postman	3.65	3.80	-0.15	-1.05	0.15
Mechanic	3.62	3.56	0.06	0.40	0.35
Secretary	3.62	3.51	0.11	0.63	0.27
Toymaker	3.55	3.64	-0.09	-0.51	0.31
Driver	3.45	3.63	-0.18	-0.99	0.16
Collecting Forest Products	3.49	3.50	-0.01	-0.04	0.49
Cooking	3.29	4.02	-0.73	-4.58	0.00*
Restaurant-owner	3.48	3.31	0.17	0.92	0.18
Wireman	3.34	3.52	-0.18	-0.96	0.17
Goldsmith	3.10	3.91	-0.81	-4.76	0.00*
Industrialist	3.15	3.51	-0.36	-1.97	0.03*
Tailor	3.19	3.36	-0.17	-1.07	0.15
Mason	3.26	3.04	0.22	1.17	0.12
Taxi-Driver	3.10	3.19	-0.09	-0.48	0.32
Fishing	2.96	3.26	-0.30	-1.84	0.04*
Clerk	3.01	3.13	-0.12	-0.79	0.22
Peon	2.92	2.90	0.02	0.06	0.48
Basket-weaver	2.73	2.90	-0.17	-0.89	0.19
Mill-worker	2.69	2.71	-0.02	-0.10	0.46
Potter	2.49	3.07	-0.58	-3.25	0.00*
Grocer	2.36	2.81	-0.45	-2.61	0.00*
Hawker	2.17	2.65	-0.48	-2.73	0.00*
Cobbler	2.14	2.66	-0.52	-2.88	0.00*
Domestic servant	2.18	2.45	-0.27	-1.51	0.07
Laundry-washer	2.09	2.52	-0.43	2.54	0.00*
Porter	2.08	2.51	-0.43	-2.29	0.01*

* Significant at .05 level

It is seen from table 3.20 that there is a discrepancy between the ratings given by boys and girls to each and every occupation. This discrepancy is quantified by subtracting the mean rating of an occupation by girls, from the mean rating by boys. A positive sign indicates, that the occupation was favoured more by boys than girls and a negative sign indicates the opposite. Of the fifty occupations, thirty two occupations, (64%) were rated higher by girls and eighteen occupations (36%) were rated higher by boys. In order to test whether these differences by sex are statistically significant, t-tests for the differences in means by sex , were conducted.

The results of the t-test have also been indicated in table 3.20. *Of the fifty occupations, sixteen occupations (32%) were found to have received significantly different ratings from boys and girls.* These sixteen occupations were: lawyer, porter, laundry-washer, sarpanch, hawker, cobbler, grocer, industrialist, potter, fishing, goldsmith, cooking, nurse, sculptor, pilot and teacher. Of all the sixteen occupations, fourteen were favoured more by girls and only the last mentioned occupations, teacher and pilot, were more favoured by boys. What could be the cause of this higher rating of occupations by girls? One possible reason is that girls, who are often either constrained to be housewives or to whom many occupations are not open, tend to see many occupations in a very positive way and rate most occupations highly. On the other hand, boys to whom most occupations are open, are more critical when rating occupations.

a. Rank order correlation coefficient of the ranking of occupations by boys and girls.

On the basis of the mean ratings given to each occupation by boys and girls, the occupations were ranked from 1 to 50 by the researcher. Spearman's rank order correlation co-efficient between girls and boys ranking was calculated. To correct for ties in ranks for occupations, the statistical correction was applied. Table 3.21 presents the ranking of the occupations by girls and boys (based on the mean rating given to each occupation), the difference between the two rankings and the difference squared.

TABLE 3.21

The ranking of occupation by boys and girls, the differences in the ranking and the differences squared

Occupation	$Rank_b$	$Rank_g$	$d=Rank_b-Rank_g$	d^2
Doctor	1	1	0	0
Sportsman	3	7	-4	16
Engineer	4	3	1	1
Teacher	2	9	-7	49
Lawyer	5	2	3	9
Painter	6	6	0	0
Author	7	5	2	4
Professor	8	11.5	-3.5	12.25
Judge	9	13.5	-4.5	20.25
Scientist	12.5	11.5	1	1
Farming	10	16.5	-6.5	42.25
Manager	12.5	13.5	1	1
Soldier	11	19	-8	64
Artist	15	10	5	25
Pilot	14	26	-12	144
MLA	16	18	-2	4
Sculptor	21.5	8	13.5	182.25
Horticulturist	17	21	-4	16
Police Constable	18	24	-6	36
Police Inspector	19	23	-4	16
Sarpanch	21.5	16.5	5	25
Shop-keeper	20	22	-2	4
Nurse	31	4	-27	729
Talati	23	29	-6	36
Postman	24	25	-1	1
Mechanic	25.5	30	-4.5	20.25
Secretary	25.5	32.5	-7	49
Toymaker	27	27	0	0
Driver	30	28	2	4
Collecting Forest Products	28	34	-6	36
Cooking	33	15	18	324
Restaurant-owner	29	36	-7	49
Wireman	32	31	1	1
Goldsmith	37.5	20	17.5	306.25
Industrialist	36	32.5	3.5	12.25
Tailor	35	35	0	0
Mason	34	41	-7	49
Taxi-Driver	37.5	38	-0.5	0.25
Fishing	40	37	3	9
Clerk	39	39	0	0
Peon	41	42.5	-1.5	1
Basket-weaver	42	42.5	-0.5	0
Mill-worker	43	45	-2	4
Potter	44	40	4	16
Grocer	45	44	1	1
Hawker	47	47	0	0
Cobbler	48	46	2	4
Domestic servant	46	50	-4	16
Laundry-washer	49	48	1	1
Porter	50	49	1	1
Total				2343.5

The rank order correlation co-efficient between the two rankings was 0.89, which is significant at the 0.01 level. The formula for calculating the rank-order correlation and the actual working out of the formula are presented in the appendix (Appendix C). *From the significant rank order correlation co-efficient it can be concluded that the ratings given by girls and boys are highly correlated. The positive sign of the correlation coefficient indicates that the occupation rated high by girls was also rated high by the boys and vice-versa.* However, inspite of a high positive correlation, which indicates that ranking of occupations by boys and girls is similar, some occupations differ in the mean rating (preference) by the two sexes. The t-test for the difference in mean ratings given by boys and girls (table 3.20) indicated that of the 50 occupations tested, the mean difference was significant for only 16 occupations (32%) of the total occupations. The 16 occupations which received significant differences in ratings from girls and boys were ranked separately on the basis of the ratings and a rank-order correlation co-efficient was computed. This procedure was undertaken in order to learn whether the significant differences in the ratings of these occupations affected the ranking in any way. The working of the formula is presented in the appendix (Appendix D). The computed rank-order correlation co-efficient was 0.89 which was exactly the same co-efficient received from the ranking of all the 50 occupations. The rank-order correlation coefficients being exactly the same in the two instances confirmed, that the rank-order correlation coefficient of the subset was exactly the same as the rank-order correlation

coefficient of the total set of occupations (ranked on the basis of mean rating). Thus, one can say that ranking of the occupational prestige is, in general, similar between girls and boys, even though their ratings differ occasionally.

3.3.5 Analysis of occupational prestige by caste

The prestige of occupations, in terms of mean rating of each occupation, by SC/ST students and Non-SC/ST students, was compared to learn if there were any major differences in the occupational prestige of these occupations as perceived by the two groups. One-tailed t-tests were used to test the significance of differences of the mean ratings given by the SC/ST and Non-SC/ST students. The null hypothesis of no difference in the mean ratings of the SC/ST and Non-SC/ST students was tested against the alternative hypothesis

a) that SC/ST students had rated the occupations higher than Non-SC/ST students.

b) that Non-SC/ST students had rated the occupations higher than SC/ST students.

Table 3.22 presents the mean rating of each occupation by the SC/ST students and the Non-SC/ST students. It also presents the difference between means, the t-values of the difference in means and the probabilities of the t-values.

Table 3.22

Ratings of occupations by SC/ST and Non-SC/ST students

Occupation	$\bar{X}$ SC/ST	$\bar{X}$ Non-SC/ST	Difference $\bar{X}_{SC/ST} - \bar{X}_{NonSC/ST}$	t-value	One-tailed probability
Doctor	4.72	4.95	-0.23	-3.20	0.00*
Sportsman	4.51	4.50	0.01	0.04	0.49
Engineer	4.44	4.73	-0.29	-2.46	0.01*
Teacher	4.52	4.45	0.07	0.55	0.30
Lawyer	4.45	4.37	0.08	0.40	0.35
Painter	4.39	4.30	0.09	0.55	0.29
Author	4.30	4.48	-0.18	-1.52	0.07
Professor	4.16	4.51	-0.35	-2.54	0.01*
Judge	4.17	4.31	-0.14	-0.79	0.20
Scientist	4.03	4.89	-0.86	-2.30	0.01*
Farming	4.08	4.30	-0.22	-1.23	0.11
Manager	4.08	4.29	-0.21	-1.17	0.12
Soldier	4.01	4.49	-0.48	-3.69	0.00*
Artist	4.07	4.00	0.07	0.40	0.35
Pilot	3.87	4.08	-0.21	-0.98	0.17
MLA	3.94	3.87	0.07	0.32	0.38
Sculptor	3.86	4.15	-0.29	-1.54	0.07
Horticulturist	3.88	3.88	0.00	0.02	0.49
Police Constable	3.97	3.31	0.66	3.76	0.00*
Police Inspector	3.76	4.05	-0.29	-1.60	0.06
Sarpanch	3.68	4.34	-0.66	-4.35	0.00*
Shop-keeper	3.83	3.73	0.10	0.65	0.26
Nurse	3.61	4.12	-0.51	-2.36	0.01*
Talati	3.68	3.78	-0.10	-0.55	0.29
Postman	3.66	3.85	-0.19	-1.10	0.14
Mechanic	3.58	3.73	-0.15	-0.82	0.21
Secretary	3.49	3.92	-0.43	-2.63	0.01*
Toymaker	3.54	3.68	-0.14	-0.68	0.25
Driver	3.52	3.46	0.06	0.26	0.40
Collecting Forest Products	3.54	3.31	0.23	1.14	0.13
Cooking	3.46	3.58	-0.12	-0.54	0.30
Restaurant-owner	4.51	4.50	0.01	0.04	0.49
Wireman	3.29	3.72	-0.43	-2.01	0.03*
Goldsmith	3.17	3.93	-0.76	-3.46	0.01*
Industrialist	3.18	3.51	-0.33	-1.72	0.05*
Tailor	3.26	3.20	0.06	0.32	0.38
Mason	3.16	3.33	-0.15	-0.80	0.21
Taxi-Driver	3.05	3.38	-0.33	-1.64	0.05*
Fishing	2.96	3.36	-0.40	-2.20	0.02*
Clerk	3.03	3.08	-0.05	-0.28	0.39
Peon	2.92	2.95	-0.03	-0.17	0.44
Basket-weaver	2.72	3.00	-0.28	-1.33	0.10
Mill-worker	2.62	3.05	-0.43	-2.18	0.02*
Potter	2.49	3.25	-0.76	-3.77	0.00*
Grocer	2.36	2.95	-0.59	-3.12	0.00*
Hawker	2.22	2.54	-0.32	-1.62	0.06
Cobbler	2.20	2.59	-0.39	-1.94	0.03*
Domestic servant	2.27	2.27	0.00	0.02	0.50
Laundry-washer	2.09	2.68	-0.59	-3.14	0.00*
Porter	2.16	2.36	-0.20	-0.97	0.17

* Significant at .05 level

From table 3.22, it is seen that of the fifty occupations, thirty six occupations were rated higher by the Non-SC/ST students as compared to 12 occupations rated higher by the SC/ST students. The 12 occupations rated higher by the SC/ST students were sportsman, teacher, lawyer, painter, artist, police constable, shop-keeper, driver, restaurant owner, collector of forest products, tailor and MLA. Two occupations, horticulturist and domestic servant received the same mean rating from both the SC/ST and Non-SC/ST students.

Of the discrepant occupations (48/50), *the differences between the SC/ST and Non-SC/ST groups were significant for 19 occupations, that is, 38% of the given occupations differed significantly in the ratings received from SC/ST and Non-SC/ST students.* Within these nineteen occupations, eighteen were rated higher by Non-SC/ST students. These occupations were doctor, engineer, professor, scientist, soldier, sarpanch, nurse, secretary, wireman, industrialist, goldsmith,taxi-driver, mason, mill-worker, potter, laundry-washer, grocer and cobbler. One occupation, that of 'police constable', was rated higher by SC/ST students. Of the nineteen occupations which were significantly different, five, or 26%, belonged to the professional category and were rated higher by the Non-SC/ST group. Thus, it appears that the Non-SC/ST group have rated professional occupations higher than the SC/ST students. However, if one considers the ranking of the occupations by the two groups (on the basis of the mean ratings), a different picture emerges.

TABLE 3.23

The ranking of occupations by SC/ST and Non-SC/ST students, the differences in the ranking and the differences squared

Occupation	Ranking by SC/ST (R_1)	Ranking by the Non-SC/ST (R_2)	$d = R_1-R_2$	d^2
Doctor	1	1	0	0
Sportsman	4	4	0	0
Engineer	6	2	4	16
Teacher	2.5	8.5	-6	36
Lawyer	5	10	-5	25
Painter	7	13	-6	36
Author	8	7	1	1
Professor	10	3	7	49
Judge	9	12	-3	9
Scientist	13	5.5	7	49
Farming	2.5	8.5	-6	36
Manager	11	14.5	-3.5	12.25
Soldier	14	5.5	8.5	72.25
Artist	12	19	-7	49
Pilot	18	17	1	1
MLA	16	23	-7	49
Sculptor	19	14.5	4.5	20.25
Horticulturist	17	22	5	25
Police Constable	15	37.5	-22.5	506.25
Police-Inspector	21	18	3	9
Sarpanch	22.5	11	11.5	132.25
Shop-keeper	20	26.5	-6	36
Nurse	25	16	9	81
Talati	22.5	25	-2.5	6.25
Postman	24	24	0	0
Mechanic	26	26.5	0.5	0.25
Secretary	30	21	9	81
Toymaker	27.5	29	-1.5	2.25
Driver	29	33	-4	16
Collecting Forest Products	27.5	37.5	-10	100
Cooking	31	30	1	1
Restaurant-owner	32	31	1	1
Wireman	33	28	5	25
Goldsmith	36	20	16	256
Industrialist	35	32	3	9
Tailor	34	40	-6	36
Mason	37	36	1	1
Taxi-Driver	38	34	4	16
Fishing	45	35	10	100
Clerk	39	41	-2	4
Peon	40	44.5	-4.5	20.25
Basket-weaver	41	43	-2	4
Mill-worker	42	42	0	0
Potter	43	39	4.5	16
Grocer	44	44.5	0.5	0.25
Hawker	47	48	-1	1
Cobbler	48	47	1	1
Domestic servant	46	50	-4	16
Laundry-washer	50	46	4	16
Porter	49	49	0	0
Total				1979.5

Table 3.23 presents the ranking of the occupations by the SC/ST and Non-SC/ST groups, the difference in the ranking and the difference squared. The rank-order correlation coefficient between the two groups was 0.92 (appendix E). This correlation was high and positive and significant at the 0.01 level. *Such a high rank-order correlation suggests that the ranking of occupation by SC/ST and Non-SC/ST students is very much alike, and that the caste of the respondents does not affect the prestige ranking of occupations.* Though it was mentioned earlier that the rank-order correlation of the subset taken from the total set of occupations had the same rank-order correlation, such a procedure was undertaken for the nineteen occupations which had received statistically significant ratings from SC/ST and Non-SC/ST students. The same finding was confirmed (appendix F). Thus, one can say that the ranking of occupations by SC/ST and Non-SC/ST students is in general similar in spite of the difference in ratings.

3.3.6 Summary

With reference to prestige of occupations it was assumed that the variables of sex and caste of the respondents might have had an effect on the perception of occupational prestige. The rank-order correlations of ranking by sex (0.89) and caste (0.90) indicate that there are not very many differences in the way students of either sex, and belonging to of SC/ST or Non-SC/ST groups rank and rate the occupations. That the perception of occupational prestige is universal and does not differ with sex and caste is an important finding.

However, the t-test for the mean rating received by each occupation revealed that sex-wise there was a significant difference in 32% (16/50) of the occupational ratings, while with reference to caste there were significant differences in 38% (19/50) of the occupations. No trend was noticeable in the kind of occupations that differed by sex. One observation was that girls rated the occupations higher than boys, that is, 64% occupations were rated higher by girls and 36% by boys.

Caste-wise, it was seen that the Non-SC/ST students rated 76% of the occupations higher, (36/50) while the scheduled caste/tribe students rated 24% of the occupations higher (12/50). The remaining 2 occupations (4%) received similar ratings. The t-tests indicated that there were significant differences in the way 26% of the occupations (13/50) were rated by the SC/ST and Non-SC/ST students. One trend which was also noticeable was that the Non-SC/ST students had rated the professional occupations higher.

3.4 Sex-role stereotyping of occupations

Sex is a major factor involved in the division of labour and in the stratification of society on the basis of roles played.[1] Moreover, the factor of sex has resulted in a variety of controversies related to power and authority. As one's place in the social hierarchy is associated with one's occupation, groups low in the pecking order have to accept and often be satisfied with unpleasant or unimportant jobs.[2] Even more importantly, the vicious circle of groups low in social

hierarchy being assigned less prestigious jobs, and jobs assigned to lower groups acquiring lower social status, works swiftly and surely to establish and perpetuate a cruel social hierarchical structure. Stereotyping of occupational roles, thus, becomes a means of maintaining and justifying the status-quo.

The term stereotyping refers to the belief-systems which contain generalizations about the characteristics of groups or persons.[3] Stereotypes can be totally false. Even when they do contain elements of truth, they often do not take into account the individual differences in traits or the degree of overlap between groups. Stereotyping arises when groups of people are constrained to opt for or accept preselected roles, on the basis of a limited and narrow range of characteristics or qualities, ignoring, often deliberately, all other qualities. Besides sex, religion, caste, race, nationality or any other characteristic can be used for stereotyping.

Sex-roles are shaped by common social assumptions and expectations. They are readily stereotyped and are internalised by children at a young age through the process of identification with members of one's own sex.[4] Almost all social systems to which growing children are exposed, such as, the value systems based on conformity, and exhibited openly by the family and peers, the educational system, the mass-media and all other agents of socialization, instill in the child a belief, that role stereotyping on the basis of sex is natural and unquestionable. Thus, the concepts of 'masculine' and 'feminine', and the norms of gender specific behaviour are learnt by the child.[5]

The tendency of individuals to conform to such role expectations is strong, because conforming behaviour is rewarded with approval, while any variation in behaviour which contradicts such expectations, results in social sanctions ranging from disapproval, ridicule to ostracism.[6] Conformity is so deeply rooted, that even with respect to occupational selection, most people make choices typical of their sex and are reluctant to consider career options that do not fit into the stereotype, even if such options are technically available to them.

In a society where deliberate and massive attempts are being made to universalize education, as a means towards social equality and also for human resource development and for self reliance in several fields like industrial and agricultural growth, it is essential that important social aspects of education should not be ignored. After all, education is expected to lead to the total development and preparation of the individual to play a role consistent with one's abilities. The implicit emphasis on education as the 'cure for all the ills of the society' in the expansion of educational facilities, probably led to the belief that education would bring about greater equality in the society.[7] While the basic issue of girls' enrolment seems to have received considerable attention, the task of encouraging girls to seek career opportunities, primarily on the basis of their talents, aptitude and performance levels is yet to receive societal attention. Education of girls will eventually result in a conflict, with girls opting for non-stereotyped roles. Planned efforts at creating awareness regarding both these aspects (going beyond stereotypes and preparing to deal with conflicts, if any), in girls and in their

parents and teachers have not taken place.

Table 3.24 and 3.25 indicate the nation-wide improvement on the enrolment front with respect to girls' education.

TABLE 3.24

Percentage of girls' enrolment to total enrolment in 1978 and 1986

Percentage of girls' enrolment to total enrolment in classes				
Year	I-V	VI-VIII	IX-X	XI-XII
1978	38.27	32.70	29.67	24.80
1986	41.16	35.45	31.74	30.71

Source: Fifth All-India Educational Survey: Selected Statistics: 1986: NCERT[8]

Table 3.24 indicates the improvement in enrolment at all levelS of schooling. Table 3.25 presents the data with regards to higher education.

TABLE 3.25

Percentage of female enrolment to total enrolment in Universities and colleges

Year	Total enrolment in Universities and colleges	% of women to total enrolment
1950-51	3,96,745	10.9
1960-61	1,049,864	16.2
1970-71	3,112,404	22.1
1980-81	6,623,715	35.1

Source: Fifth All-India Educational Survey: Selected Statistics: 1986: NCERT

Tables 3.24 and 3.25 suggest that there has been an improvement in the education of girls at least with reference to enrolment. During the decade 1971-1981, female literacy improved from **18.7%** to **24.8%**. However the

disparity between male and female literacy continues. With respect to employment, the work participation rate of women has increased only from **12.06%** in 1971 to **13.97%** in 1981. While the work participation rate is low, the participation in different occupations is extremely unbalanced.[9] Table 3.26 presents the percentages of women workers in various categories of occupations to total female workers, from 1974 to 1981.

Table 3.26

Percentage of women workers to total female workers, in various categories of occupations(1974-1981).

Occupational category	Female workers as % of total female workers in 1974	Female workers as % of total female workers in 1981
Cultivators	29.6	37.50
Agricultural labourers	50.5	44.79
Livestock, forestry, fishing, hunting,plantations, orchards and other activities.	2.5	1.79
Mining and quarrying	0.4	0.27
Manufacturing, processing, servicing, repairing a) household industry b) other than household industry	 4.2 2.8	 4.44 3.14
Constructions	0.6	0.68
Trade and commerce	1.8	1.75
Transport, storage and communications	0.5	0.29
Other services	7.1	5.35
Total	100	100

Source: Indian Women: Change and Challenge in the international decade (1975-85): Desai. N and Patel. V (1985), Popular Prakashan, Bombay.

Table 3.26, indicates that women are involved mainly in cultivation and that too as agricultural laboures. The change in the occupational structure of women's participation, from 1974 to 1981, is also marginal. In this study, attempts were made to understand the role played by the formal educational system in perpetuating or changing gender roles. One component of this study was the documentation of views held by teachers with respect to the suitability of occupations for the sexes. Another component aimed at learning whether students have internalised such attitudes towards occupations. Thus, the objectives of this study were:

1. To learn whether teachers hold stereotypes of occupations as suitable or unsuitable with respect to sex.
2. Whether the sex of the teachers has any relation to the stereotype, that is, do male and female teachers differ or hold the same stereotypes of occupations with respect to sex suitability.
3. To learn if students hold stereotypes of occupations as suitable or unsuitable with respect to sex.
4. Whether the sex of students has any relation to the stereotype, that is, do girls and boys differ or hold the same stereotypes about occupational suitability with respect to sex.
5. Whether the caste background of students has any relation to the holding of the stereotype, that is, do SC/ST and Non-SC/ST students differ or hold the same stereotype about occupational suitability with respect to sex.

This aspect was not extended to cover teachers since none of the teachers belonged to the SC/ST category.

3.4.1 The sample

The sample of teachers consisted of forty-eight secondary school teachers from Dahanu. Twenty of the forty-eight teachers or 42% of the sample were female while 58% were male. The students' sample comprised of one hundred and forty-one students, studying in the eighth (2%), ninth (72%) and tenth (26%) standards, of ten schools in Dahanu. Forty-five percent of the sample were girls (64/141) while, fifty-five percent were boys (77/141). Forty-two percent of the sample were SC/ST, while fifty-seven percent were Non-SC/ST students. One respondent had not answered the question related to caste. The ages of the students varied in the range from twelve to eighteen years and the mean age was fifteen years.

3.4.2 Data collection

Two separate questionnaires for teachers and students were prepared (Appendix G and H). Both the questionnaires listed two identical sets of seventeen occupations and the respondents were requested to tick occupations they considered suitable/unsuitable for boys in the first set and for girls in the second set. All the occupations listed in the questionnaires had been collected earlier from students in the Dahanu region, when they were asked to write down the

mentioned most often were used for this study. No constraints of time were imposed, in filling up of the questionnaires.

3.4.3 Analysis of the data collected from teachers

The percentage of teachers stating an occupation as suitable for boys/girls was computed. It was assumed that if an occupation was considered equally suitable for both sexes, there would be no statistically significant differences in the percentages of teachers stating an occupation as suitable for both boys and girls. On the other hand, if there were statistically significant differences in the percentages of teachers stating a particular occupation as suitable for girls/boys, the extent and direction of this difference could be computed and would indicate bias in stereotyping of occupations.[10]

Table 3.27 presents the seventeen occupations and the percentage of teachers stating the occupation to be suitable for girls and boys. The difference for the two sexes is also presented and a positive sign indicates that the occupation was found more suitable for boys, while a negative sign indicates the opposite.

Table 3.27

Percentage of teachers stating occupations as suitable for boys and girls, and the difference in the stated suitability (N = 48)

Occupation	% of teachers stating that an occupations is suitable for		Difference in the stated suitability between boys and girls
	Boys	Girls	
Teacher	77	96	-19
Clerk	77	71	6
Nurse	42	98	-56
Lawyer	92	98	6
Police Inspector	81	75	6
Doctor	96	100	-4
Scientist	100	100	Nil
Artist	100	100	Nil
Domestic servant	32	51	-19
Professor	96	100	-4
Farmer	96	81	15
Mechanic	98	75	23
Merchant	90	69	21
Engineer	100	100	Nil
Pilot	100	88	12
Industrialist	100	88	12
Head master	77	81	-4

Table 3.27 shows that three occupations have received the same percentage for both boys and girls, that is, these occupations are considered by teachers to be equally suitable for both sexes. The three occupations are that of scientist, artist and engineer. These three occupations are not only seen as equally suitable, but are also regarded very highly, as seen by the hundred percent approval from all the teachers. Other occupations which have been seen as highly suitable are, industrialist and pilot for boys and doctor and professor for girls. No occupation is considered totally unsuitable for any of the sexes. One occupation is considered to be highly unsuitable for both sexes and is that of domestic servant (suitability for boys 32%, girls 51%). Of the seventeen occupations there is no discrepancy in the percentages for three. Seven of the remaining fourteen have

been stated as being more suitable for girls and the other seven for boys. Thus, for 82% (14/17) of the occupations, there is a discrepancy in the stated sex suitability.

To test the significance of this discrepancy, the 'Z' test for proportions (one-tailed) was conducted. The null hypothesis, that there is no difference between sex and stated suitability of occupations was tested at the 0.05 level of significance against the alternative hypotheses:

a) The occupation is stated to be more suitable for girls,

b) The occupation is stated to be more suitable for boys.

Table 3.28 presents the occupations and the 'Z' values for the occupations.

TABLE 3.28

Calculated Z values for the occupational suitability for the sexes according to teachers

Occupations	Z values
Teacher	-2.83*
Clerk	+0.67
Nurse	-7.57*
Lawyer	-1.36
Police Inspector	+0.71
Doctor	-0.5
Scientist	-
Artist	-
Domestic servant	-1.92*
Professor	-0.5
Farmer	+2.37*
Mechanic	+3.49*
Merchant	+2.64*
Engineer	-
Pilot	+2.56*
Industrialist	+2.56*
Headmaster	-0.48

* Significant at the 0.05 level
\- No difference in proportions for both sexes.

Of the seventeen occupations, *eight (47%) were found to differ significantly in terms of the stated occupational suitability for the sexes (0.05 level of significance).* These occupations were, teacher, mechanic, pilot, industrialist, merchant, nurse, domestic servant and farmer. *Of the eight occupations, three (38%) were favoured more for girls (nurse, teacher and domestic servant) while five (63%) were favoured more for boys (mechanic, farmer, pilot, industrialist and merchant).* Thus, teachers do stereotype occupations in terms of suitability for the two sexes.

An attempt was made to learn if the sex of the teachers was related to their attitudes about occupational suitability for the sexes. Thus, it was intended to learn if male and female teachers held the same stereotypes of occupational suitability. A χ^2 test for relationship between sex of teachers and stated suitability/unsuitability of occupations for boys and girls was conducted. The null hypothesis, that there is no relationship between sex of teachers and stated suitability of occupations for boys and girls was tested against the alternative hypothesis, that such a relationship does exist. The χ^2 values for each of the occupations in the case of girls and boys are presented in table 3.29.

TABLE 3.29

χ^2 values for the attributes 'sex of teachers' and 'stated suitability of occupations for boys and girls' (N= 48)

Occupation	χ^2 values for the attributes sex of teachers and stated suitability of occupations for		Probability of χ^2 values	
	Boys	Girls	Boys	Girls
Teacher	0.41	0.24	0.52	0.63
Clerk	0.00	1.15	1.00	0.28
Nurse	0.01	0.00	0.92	1.00
Lawyer	0.00	0.00	1.00	1.00
Police Inspector	0.04	0.11	0.85	0.74
Doctor	0.24	-	0.62	-
Scientist	-	-	-	-
Artist	-	-	-	-
Domestic servant	0.13	0.01	0.72	0.90
Professor	0.95	-	0.33	-
Farmer	0.24	1.72	0.63	0.19
Mechanic	0.00	2.86	1.00	0.09
Merchant	0.31	0.00	0.58	1.00
Engineer	-	-	-	-
Pilot	-	0.00	-	1.00
Industrialist	-	0.00	-	1.00
Headmaster	0.00	0.88	0.95	0.35

- 100 percent suitability for the occupation

The insignificant results of the χ^2 test for the attributes 'sex of teachers' and 'stated suitability of occupations for each sex', revealed *that there was no relation between the sex of teachers and the suitability of occupations as stated by them. This suggests that both male and female teachers hold the same stereotypes of occupational suitability.* In the next section, the presence/absence of such stereotypes amongst students is studied.

3.4.4 Analysis of the data collected from students

The percentage of students stating an occupation as suitable for boys/girls and the differences between the stated percentages was computed. The same assumption, that if an occupation was considered equally suitable for both the sexes, there would be no statistically significant differences in the proportion of students stating the occupation as suitable for boys and girls, was held with regard to students too. Thus, statistically significant differences in the proportion of students stating a particular occupation as suitable for girls/boys was taken as an indicator of stereotyping of occupations.

Table 3.30 presents the seventeen occupations and the percentage of students stating the occupation to be suitable for boys and girls. The differences for the two sexes is also presented. A positive sign indicates that the occupation was found more suitable for boys, while a negative sign indicates the opposite.

TABLE 3.30

Percentage of students stating occupations to be suitable for girls and boys and the differences in the stated suitability (N=141).

Occupation	% of students stating that an occupation is suitable for		Difference in the stated suitability for boys and girls
	Boys	Girls	
Teacher	99	92	7
Clerk	76	37	39
Nurse	15	92	-77
Lawyer	90	92	-2
Police Inspector	94	84	10
Doctor	94	87	7
Scientist	80	66	14
Artist	87	79	8
Domestic servant	16	65	-49
Professor	89	75	14
Farmer	92	69	23
Mechanic	79	26	53
Merchant	85	51	34
Engineer	94	68	26
Pilot	83	51	32
Industrialist	77	65	12
Headmaster	98	87	11

The table reveals that no occupation has been regarded by students as equally suitable for both boys and girls. Thus, every occupation differs in its suitability for the sexes (This can be contrasted with teachers' answers to the question of suitability wherein three occupations, that is, 18% of the total occupations were seen as equally suitable for the two sexes).

Of the seventeen occupations, the students stated three occupations as more suitable for girls. These were, lawyer (2% discrepancy), domestic servant (49% discrepancy) and nurse (77% discrepancy). The remaining 14 are seen as more suitable for boys (These figures can also be contrasted with those of the

teachers. Teachers stated three occupations as equally suitable for boys and girls, seven occupations as more suitable for girls and the other seven as more suitable for boys).

To test the significance of the discrepancy in the stated suitability of occupations by students, the 'Z' test for proportions (one-tailed) was conducted. The null hypothesis that there is no difference between sex and stated suitability of occupations was tested at the 0.05 level of significance against the alternative hypotheses:

a) that the occupation is considered more suitable for boys.

b) that the occupation is considered more suitable for girls.

Table 3.31 presents the occupations and the calculated 'Z' values.

TABLE 3.31

Calculated Z values for the occupational suitability for the sexes according to students

Occupation	Calculated 'Z' values
Teacher	2.88*
Clerk	7.18*
Nurse	-20.37*
Lawyer	0.58
Police Inspector	2.72*
Doctor	2.02*
Scientist	2.68*
Artist	1.78*
Domestic servant	-9.66*
Professor	3.11*
Farmer	5.09*
Mechanic	10.52*
Merchant	6.58*
Engineer	5.90*
Pilot	6.07*
Industrialist	2.24*
Headmaster	3.58*

* Significant at the 0.05 level

Of the seventeen occupations, suitability with respect to sex was significantly different for 16 or ninety-four percent of the occupations at the 0.05 level. (In comparison, the teachers stated only eight occupations (47%) as significantly different in terms of occupational suitability). *Two of the sixteen occupations, that is, nurse and domestic servant were stated as more suitable for girls while the remaining were considered more suitable for boys. Thus students do stereotype occupations in terms of suitability for the two sexes and consider more occupations as suitable for boys than girls.*

The differences between teachers and students with reference to stereotyping of occupations in terms of sex suitability are represented in table 3.32 and fig 3.01.

Table 3.32

The number of occupations stereotyped by teachers and students

Group	Stereotype of occupations	Number	%
Teachers	Suitability for girls	3	18
	Suitability for boys	5	29
	Not significant	9	53
Students	Suitability for girls	2	12
	Suitability for boys	14	82
	Not significant	6	6

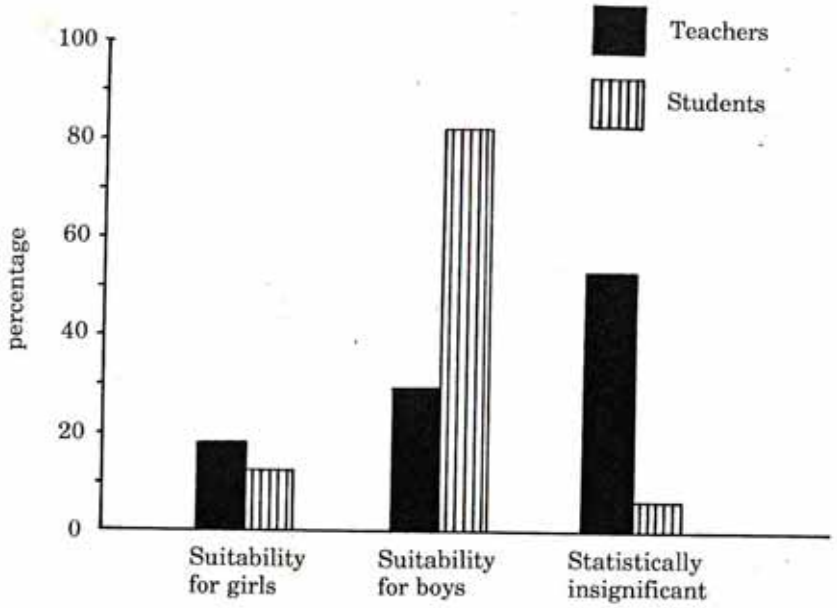

Fig. 3.01. Occupational suitability for girls and boys according to teachers and students.

Table 3.32 and fig 3.01 suggest that students hold more stereotypes of occupational suitability with respect to sex (94% of the occupations were significantly different with respect to suitability) as compared to teachers (47% of the occupations were significantly different). The calculated 'Z' of these two proportions is 6.28 which is significant at the 0.05 level. *This indicates that the number of occupations stereotyped with reference to sex by students are significantly more than those stereotyped by teachers.* Hence, the null hypothesis of no difference between teachers and students is rejected and the alternate hypothesis that students stereotype more occupations is accepted.

An attempt was made to learn if the sex of the students was related to their attitudes about occupational suitability for the sexes. Thus, it was

intended to learn if boys and girls had the same stereotypes of occupational suitability. χ^2 tests of the relationship between sex of students and stated suitability/unsuitability of occupations for boys and girls were conducted. Table 3.33 presents the results of the χ^2 test, for the attributes sex of the students and stated suitability of occupations for girls and boys.

TABLE 3.33

χ^2 values for the attributes 'sex of the students' and 'stated suitability of occupations for boys and girls' (d.f=2) (N_b=64) (N_g =77)

Occupation	χ^2 values for the attributes sex of students and stated suitability of occupations		Probability of χ^2 values	
	Boys	Girls	Boys	Girls
Teacher	0.34	2.47	0.56	0.12
Clerk	2.59	4.27	0.11	0.04*
Nurse	0.00	6.04	0.99	0.01*
Lawyer	0.00	1.34	1.00	0.25
Police Inspector	0.00	0.00	1.00	1.00
Doctor	0.00	1.83	1.00	0.18
Scientist	1.02	0.67	0.31	0.41
Artist	0.00	0.76	1.00	0.38
Domestic servant	0.79	1.81	0.37	0.18
Professor	0.03	0.00	0.87	0.95
Farmer	0.10	0.29	0.75	0.59
Mechanic	4.07	0.07	0.04*	0.79
Merchant	1.99	2.66	0.16	0.10
Engineer	0.08	2.03	0.77	0.15
Pilot	0.52	0.91	0.47	0.34
Industrialist	0.34	0.18	0.54	0.67
Headmaster	0.03	1.83	0.87	0.18

* Significant at the 0.05 level.

The above table revealed a trend similar to teachers, that is, *the sex of the respondents is not related to the stated suitability of occupations for*

different sexes (in general). This data in the case of teachers was extremely clear-cut, that is, no occupational statement of suitability was related to the sex of the teachers. In the case of students three occupations, mechanic (χ^2 =4.07, significance level 0.04), clerical (χ^2 =6.04, significance level 0.01) and nursing (χ^2 =4.27, significance level 0.04) suggested that respondents differed by sex in their stated suitability of the occupations. Mechanic was considered more suitable for boys by girls, while clerical occupations were considered more suitable for girls by boys. Nursing was considered more suitable for girls by girls. Apart from these few differences to a large extent girls and boys have the same stereotypes of occupational suitability, and do not differ in their views of suitability of occupations for the sexes.

An attempt was made to assess if the caste of the students, in terms of belonging to SC/ST and Non-SC/ST students, was related to the attitudes about occupational suitability for the sexes. The same procedure of conducting χ^2 tests for the relationship between caste of students and stated suitability/unsuitability of occupations for boys and girls were conducted. Table 3.34 presents the χ^2 values for each occupation for girls and boys.

TABLE 3.34

χ^2 values for the attributes 'caste of students' and 'stated suitability of occupations among girls and boys' (d.f=2) ($N_{SC/ST}$=59) ($N_{NonSC/ST}$=81)

Occupation	χ^2 values for the attributes sex of students and stated suitability of occupations		Probability of χ^2 values appearing by chance	
	Boys	Girls	Boys	Girls
Teacher	0.25	0.01	0.62	0.93
Clerk	0.75	1.14	0.39	0.28
Nurse	0.00	4.43	1.00	0.04*
Lawyer	2.20	0.00	0.14	1.00
Police Inspector	0.24	1.42	0.62	0.23
Doctor	0.04	0.00	0.84	1.00
Scientist	1.98	0.01	0.16	0.92
Artist	0.06	0.00	0.80	1.00
Domestic servant	1.02	4.41	0.31	0.04*
Professor	0.01	4.35	0.92	0.04*
Farmer	0.00	1.81	1.00	0.18
Mechanic	8.18	0.83	0.00*	0.36
Merchant	1.61	6.00	0.20	0.01*
Engineer	0.00	0.03	1.00	0.87
Pilot	0.40	0.24	0.53	0.63
Industrialist	2.09	0.03	0.15	0.88
Headmaster	0.00	0.00	1.00	0.97

Table 3.34 indicated a trend similar to teachers and the sex-wise analysis of occupational suitability for the sexes, that is, *the caste of the respondents was seen, in general, to be unrelated to the stated suitability of occupations for the sexes. Both SC/ST and Non-SC/ST students had the same stereotypes of occupational suitability.* However, five occupations, mechanic (χ^2= 8.18, significance level 0.00), nurse, domestic servant, professor and small business/merchant (χ^2 values 4.43, 4.41, 4.35 and 6.00, significance level 0.05)

were stated differently in terms of suitability of occupations among the castes. More Non-SC/ST students considered mechanic a more suitable occupation for boys than the SC/ST students. Nursing, domestic servant and professor were considered more suitable for girls again by the Non-SC/ST students, while SC/ST students considered small business as more suitable for girls.

3.4.5 Conclusion

This study on the sex-role stereotyping of occupations by teachers shows that teachers do stereotype occupations for the sexes. Thus, 47% of the occupations listed in the questionnaire were viewed by the teachers in a stereotyped manner as suitable or unsuitable to one sex. However, what is more important is that there was no difference in the attitudes of male and female teachers, that is, they held the same stereotypes of occupations.

Students also hold sex stereotypes for occupations, and in fact they hold a larger number of stereotypes of occupations as compared to teachers (88% of occupations are stereotyped by students). To a large extent, the same stereotypes are held independent of the sex and caste of the respondent.

Why do students hold more stereotypes than teachers? Stereotypes are a reflection of inadequate or incomplete information on the part of those who hold them. Thus, it is apparent that increased information can reduce stereotyping. Firstly, stereotyping is not based on any biological considerations and is only a legacy of social prejudices handed down through the generations. Secondly,

stereotyping of occupations on the basis of sex is unhealthy, in the sense that it closes, differentially and unjustly for girls, the avenues for participation in several careers opened up by the growth of science and technology. Since stereotypes arise out of inadequate or incomplete information, provision of information about careers and occupations can be expected to prevent such stereotypes from becoming rigid and inflexible. What is even more important is that, information could pave the way for social mobility which is so essential for a meaningful human resource development.

3.5 Summary

Three factors considered relevant for occupational selection were presented in this chapter. Each factor was analysed in detail with reference to the sex and caste of students responding to the questionnaires. In brief, the findings of this chapter are as follows:

There were no significant differences between girls and boys, SC/ST and Non-SC/ST students, students differing academically, in terms of number of occupations known. What is remarkable, is that students in a remote area, facing various handicaps, such as, lack of access to sources of information, knew quite a large number of occupations.

With respect to the different categories of occupations known, caste was able to explain the number of occupations stated in six categories of occupations. The occupations 'farmer, glamorous and managerial' were stated

more often by SC/ST students while Non-SC/ST students stated more of 'business, skilled and professional occupations'.

Sex explained the number of different kinds of occupations stated in three categories of occupations, that is, 'professional, managerial and glamorous occupations'. For these three categories girls stated more occupations than boys.

Academic performance was not related to the number of occupations known in different categories.

Ranking and rating of occupations on a five-point scale of occupational prestige indicated that the difference between the sexes and the caste membership was not significant. Specific occupations, however, revealed significant differences in prestige.

The most significant findings were with reference to sex-role stereotyping of occupations by students and teachers. It was seen that both teachers and students stereotype occupations, and that stereotyping of occupations is done more often by students. Another aspect of stereotyping was that the stereotypes were unrelated to the sex or caste of the respondent. Thus, girls and boys, SC/ST and Non-SC/ST students as well as the male and female teachers held the same stereotypes.

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CHAPTER IV

THE CAREER CHOICES OF STUDENTS

4.1 Introduction

The aim of the study on career aspirations of socially and economically backward students was to understand the impact of education on role perception. An important aspect of education is implementation of what is learnt into action. The study aimed at learning the impact of education on career aspirations of school going children.

The objectives of this study were:

1. To understand the process of decision-making in career choice.
2. To understand the factors that influence or shape career choice.
3. To learn whether there is a sex bias in career aspirations.
4. To learn whether there is a caste bias in career aspirations.
5. To learn the extent of vocational and academic guidance available to students.

This chapter presents the results of the study of these objectives.

4.2 The Interview schedule

It was decided that since the respondents were children, interviewing them would be a useful way to learn about their career choices. An

interview schedule listed all the questions to be asked during the interview, and provided space to write down the replies. The questions on the schedule were related to the objectives of the study, and were posed to every respondent. Thus, the schedule served the function of standardising interviews conducted by the same interviewer, or by different interviewers.

The interview schedule was broadly divided into four parts.

1. Demographic data: About the students, their families, and description of their financial and social background.
2. Parental literacy and conduciveness of home environment to literacy.
3. Childhood career choices: The existence of childhood career choices, the choices, the age of decision-making, independence of choices, influences which determine these choices, reactions of the family to choices, expectations of fulfilment of choices and problems anticipated in the achievement of the choices.
4. Present career choices: The career choice, whether changed or same with reference to childhood choice, reasons for the change, knowledge of requirements of chosen career, future plans and parents awareness of the choice and their reactions to the choice, comparison of childhood choice with present choice (on a scale of prestige).

The interview schedule is presented in the appendix (Appendix L). The interviews were collected mainly by the researcher, while some interviews were conducted by her colleagues. The students were selected by the process of

systematic random sampling. Students with roll numbers in multiples of five such as 5,10,15....., etc were selected. If any student was absent the immediate next student on the list was interviewed.

4.3 Demographic data of the students

4.3.1 Schooling

The sample consisted of 161 students of which 94 were boys (58%) and 67 were girls (42%). These students were from eight schools and were studying in the eighth (34%), ninth (31%) and tenth standards (35%). Table 4.01 presents information about the schools in which the respondents were studying.

TABLE 4.01

Schools from which the sample was drawn

School	Number of students	%
Vangaon	21	13
Bordi	22	14
Chinchani	18	11
Kasa	19	12
Narpad	21	13
Bapugoan	20	12
Ashagad	20	12
Kosbad	20	12
Total	161	99

4.3.2 Age of students

The ages of students ranged from twelve to eighteen years. The

mean age of the students in the sample was 15 years (S.D was 1.46). Table 4.02 presents the ages of the students in the sample.

TABLE 4.02

Ages of the students

Age (in years)	Number of students	%
12	7	4
13	21	13
14	47	29
15	36	22
16	26	16
17	18	11
18	6	4
Total	161	99

4.3.3 Religion

A majority of the students in the sample were Hindus (96%), with the remaining four percent of the sample, that is, 6 students being, Muslim (1), Christian (1), Neo-Buddh (2) and 'adivasi' (2). As mentioned earlier, some students stated that their religion, rather than caste/tribe, was adivasi.

4.3.4 Caste of students

The students were asked to state which caste or tribe they belonged to. Totally forty-eight caste or tribe groupings were named by the students. The major castes/tribes reported by the students are presented in table 4.03.

TABLE 4.03

Major castes/tribes represented in the sample

Caste/Tribe	Number of Respondents	%
Bari	5	3
Bhandara	6	4
SKP	6	4
Mangela	9	6
Maratha	10	6
Kunbi	11	7
Kokna	12	8
Malhar Koli	17	11
Warli	36	22
Total	112	71

For the purpose of analysis it was considered essential to classify all the various groups into two major categories, that is,

(a) Those belonging to scheduled caste/tribes (SC/ST).

(b) Those not belonging to scheduled castes/tribes (Non-SC/ST).

Only two out of 161 students constituted missing data. One student was unfortunately not asked this question, while one student replied that the question was not applicable to her. Table 4.04 presents the grouping of all the castes into the two categories stated above.

TABLE 4.04

Categorisation of the sample into SC/ST or Non-SC/ST groups

Category	Number of Respondents	%
Scheduled Caste/Tribe	75	47
Non-Scheduled Caste/Tribe	84	52
Missing	2	1
Total	161	100

From the table it is seen that SC/ST students formed 47% of the sample while Non-SC/ST students were 52% of the sample. Thus, the distribution of the two groups in the sample was approximately equal. The crosstabulation of sex with caste grouping was conducted and the results are presented in table 4.05.

TABLE 4.05

Sex and caste grouping (% are Row %)

Sex		SC/ST	Non-SC/ST	Total
Male	N	55	38	93
	%	59%	41%	100%
Female	N	20	46	66
	%	30%	70%	100%
Total	N	75	84	159
	%	47%	53%	100%

The crosstabulation indicates that while boys were distributed equally in the two groups, with a slight concentration in the SC/ST group, there were more girls in the Non-SC/ST group. A chi-square conducted on the attributes sex and caste classification indicated that the null hypothesis of there being no relation between sex and caste classification was rejected at the 0.00 level of significance (χ^2value 11.75). In order to test whether there are more boys than girls in the SC/ST category a one-tailed Z test of proportions was conduted. A Z value of 3.8 was computed which led to the acceptance of the alternative hypothesis that there were fewer girls in the SC/ST group as compared to boys.

This hypothesis was accepted at the 0.01 level of significance. The existence of fewer girls among SC/ST students indicates, that in this community, girls as yet do not go to school in numbers equivalent to boys.

4.3.5 Academic performance

The students were asked to report the percentage of marks received by them in the annual examination of the previous academic year. The mean percentage received by the sample was 54 (S.D. 12.70). The percentages ranged from 27 to 92. Twenty-five students (16%) of the sample, stated that they could not recall the percentage received by them. Overall, the mean of 54 is an average academic performance. For purposes of later analysis, it was decided to categorise the percentages stated, into three categories of academic performance, namely, low, medium and high. This categorisation was done by placing the lowest quartile (25%) in the low academic category and the highest quartile (25%) in the high academic category. The average academic category consisted of the remaining two quartiles of the sample. Table 4.06 presents the ranges which marked the categories and the percentage of students lying in these ranges.

TABLE 4.06

Categories of academic performance

Categories	Number of students	%	Valid %
Low (27%-45%)	38	24	28
Average (46%-63%)	65	40	48
High (64%-92%)	33	21	24
Missing	25	16	-
Total	161	101	100

The score range (27%-45%) containing 28% students constituted the low academic performance category, the score range (46%-63%) containing 48% of the students formed the average academic performance category, and the score range (64%-92%) containing 24% of the students represented the high academic performance category. The three groups are not precise in containing exactly 25% and 50% of the students. This is because the range values are integral, and choosing the next integer would disarrange the percentages required in each category even more.

The crosstabulation of caste and sex with the categorised academic performance had chi-square values of 0.03 and 0.23 respectively. *Thus, the H_o, of there being no relation between caste and academic performance was rejected, while in the case of sex, the H_o was accepted.* A one-tailed t-test conducted on the means of academic performance of SC/ST ($\bar{X}$=1.81) and Non-SC/ST students ($\bar{X}$ =2.06) had a t-value of -2.00 (probability = 0.03) which *led to the acceptance of H_1 that SC/ST students had lower academic performance as compared to Non-SC/ST students.*

The students were also asked to state if they had ever failed any standard. Fifty-five percent of students had failed sometime in their school career. Of all those who had failed, 37% had failed once, 17% twice and 1% of the sample thrice. The subject-wise distribution of failures was as follows: Mathematics (5% of sample), English (6% of sample), Mathematics and English (19% of the sample) and Mathematics and Science (14% of the sample). Thus,

students failing in Mathematics (singly or in combination with other subjects) were 38% of the sample of all failures.

Students were asked whether they took tuitions, and if they did, to name the subjects in which they took tuitions. Of the total sample only 29% were currently taking tuitions. Another 4% had stopped taking tuitions presently though earlier they took tuitions, while 67% of the sample had never before taken nor were they taking any tuitions.

The subjects in which tuitions were taken were primarily English, Mathematics and Science. Of all those who did take tuitions, 14% took tuitions only in English, 25% only in Mathematics, 57% in Mathematics and English, 2% in Mathematics and Science and 2% in English, Mathematics and Science.

Thus, Mathematics is the subject that most of the students took tuitions in. Eighty-six percent of those who took tuitions, took tuitions in Mathematics in combination with some subject, followed by English. Of all those who took tuitions, 71% did so with reference to English in combination with other subjects, while the least number of times tuitions were taken were for Science, only (2%).

4.4 Family demographic data

Family data was collected from students in order to get information about the socio-economic background of the family. It was considered important

to enquire about the size of the family. The number of members in the family varied from two to nineteen, with the mean number of family members being six. A t-test for the mean numbers of family members of the SC/ST students ($\bar{X}$=6.67) and Non-SC/ST students ($\bar{X}$=6.32) was conducted. A t-value of 0.89 having a two-tailed probability of 0.38 was computed, which *led to the acceptance of the null hypothesis, that mean family size is equal in the SC/ST and Non-SC/ST groups.*

In a majority of cases, (91%) the father of the respondent was alive. In 9% of the cases, the father was dead and 1% of the sample, that is,(1 student) stated that the father was alive but was not living with them. 98% of the students, stated that their mother was alive, 2% of the sample stated that their mother was dead.

4.4.1 Family Educational Background

Students were asked about the highest education received by their parents. The parental education was coded in terms of 0 (Illiterate), 1 (Primary schooling), 2 (Secondary education), 3 (SSC), 4 (Graduation or SSC+ a diploma or degree), 5 (Postgraduation). The information about parents' education is presented in table 4.07 and figures 4.01 and 4.02.

TABLE 4.07

Parental Education

Education	Father		Mother	
	No	%	No	%
Illiterate	40	25	80	50
Primary	34	21	32	20
Secondary	38	24	30	19
SSC	21	13	7	4
SSC+Graduation	17	11	9	6
Postgraduation	1	1	2	1
Missing	10	6	1	1
Total	161	101	161	101

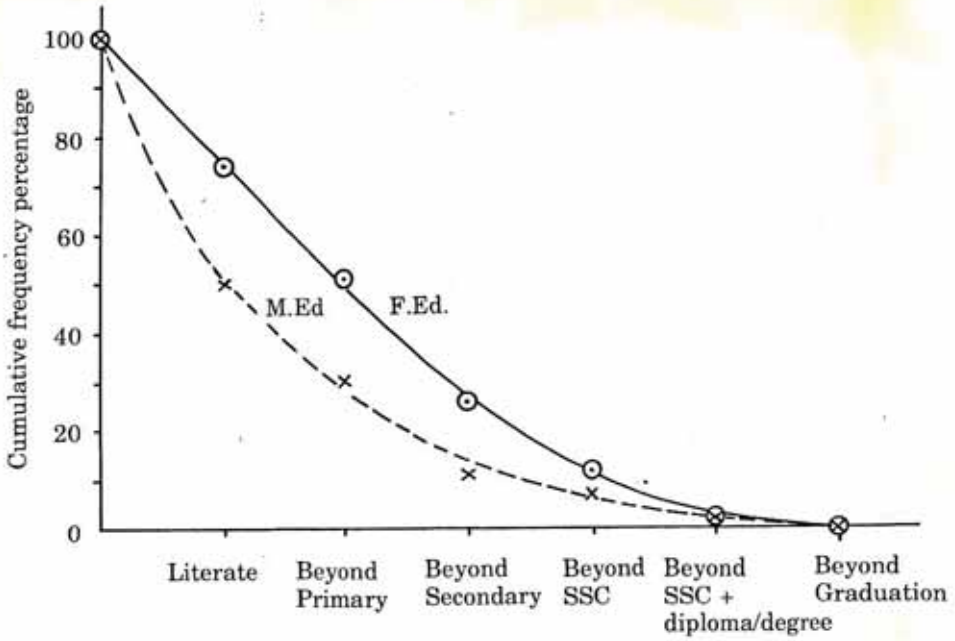

Fig. 4.01. Cumulative percentile distribution of respondents' parents education.

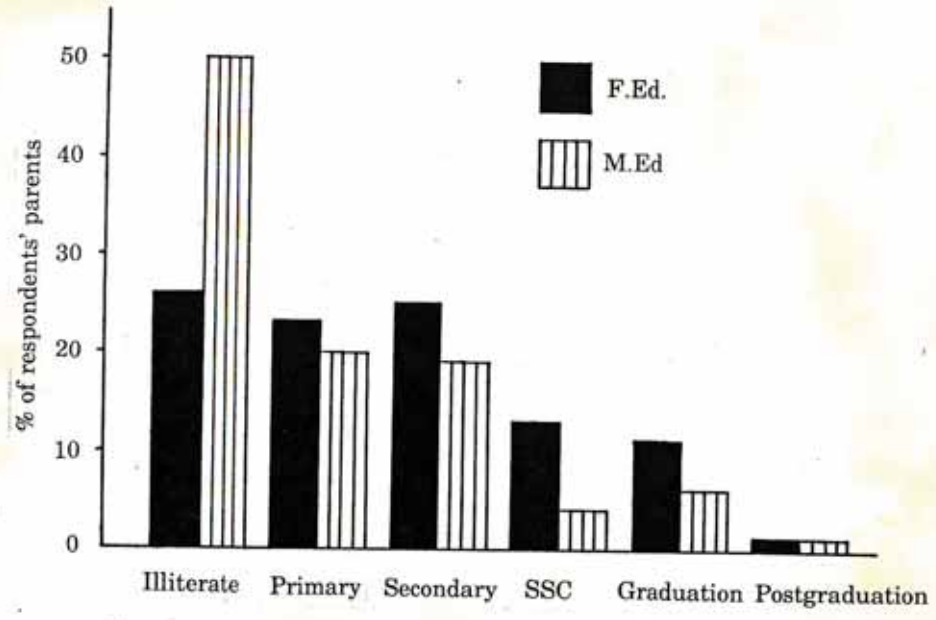

Fig. 4.02. Parental education of respondents.

Table 4.07 and figures 4.01 and 4.02 indicate that fathers of the respondents are more educated than the mothers, (25% of fathers are illiterate, while 50% of mothers are illiterate). With respect to educated parents, 25% of fathers have studied up to SSC or beyond while, the same can be said of only 11% of mothers. Table 4.07 shows further that 25% or one fourth of the sample of students, have both parents illiterate and are thus, strictly first generation learners. If, however, one takes into account the fact that primary education hardly equips parents to help their children in school studies or to provide an academic environment, one faces the grim reality that nearly half the students in the sample constitute first generation learners.

A crosstabulation of fathers' and mothers' education with caste of students was conducted. Tables 4.08 and 4.09 and figures 4.03,4.04, 4.05 and 4.06 present the results of these crosstabulations.

TABLE 4.08

Crosstabulation of caste and fathers' education (% are row %)

Caste		Illiterate	Primary	Second ary	SSC	SSC +	Postgradu ation	Total
SC/ST	N	34	22	12	4	1	0	73
	%	47%	30%	16%	6%	1%	0	100%
Non SC/ST	N	5	11	26	17	16	1	76
	%	7%	15%	34%	22%	21%	1%	100%
Total	N	39	33	38	21	17	1	149*
	%	26%	22%	26%	14%	11%	1%	100%

* Missing values excluded

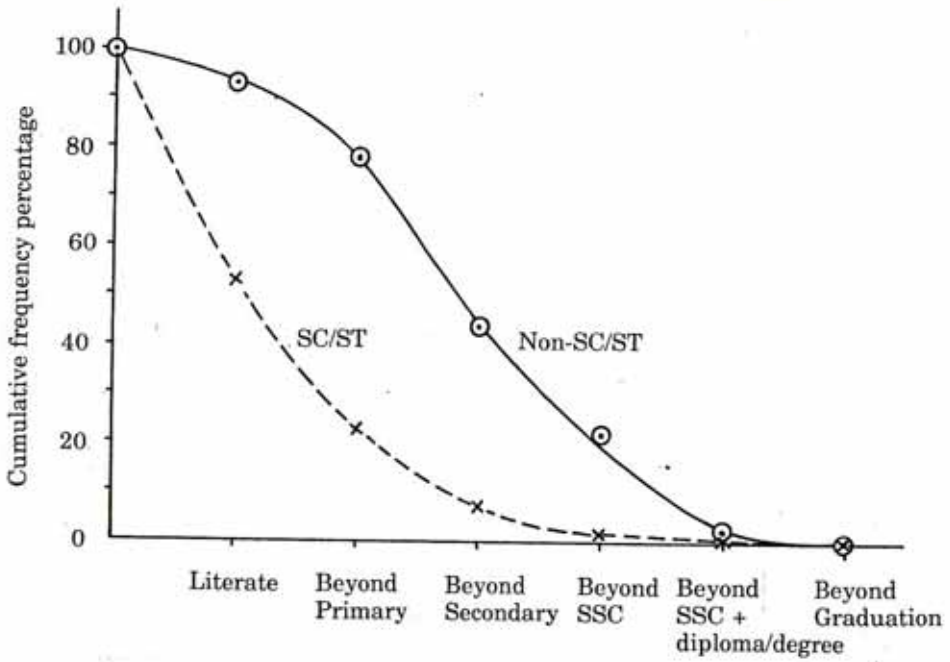

Fig. 4.03. Cumulative percentile distribution of paternal education respondents.

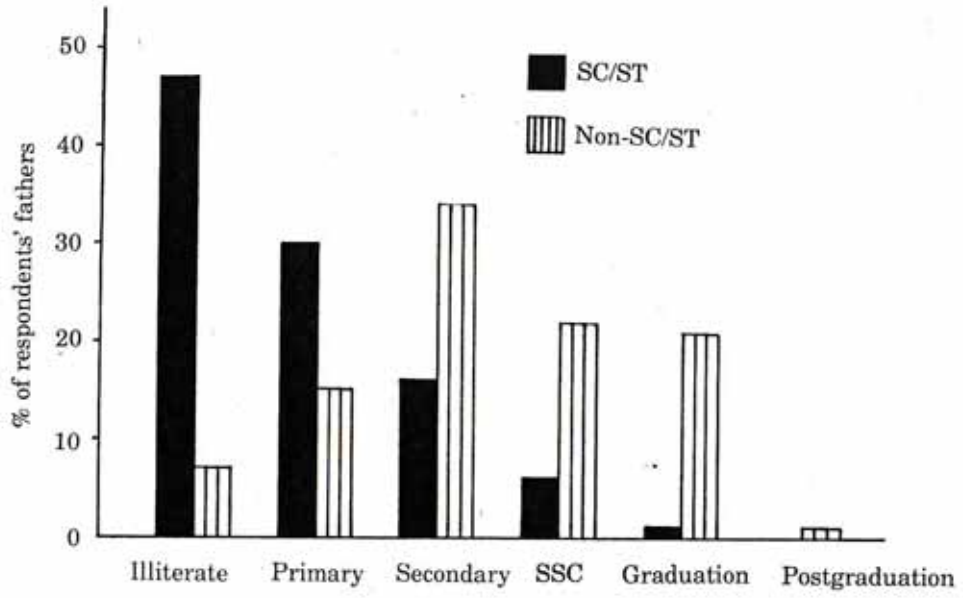

Fig. 4.04. Paternal education of respondents.

While it is generally known that SC/ST students come from an academically poorer home-background as compared to Non-SC/ST students, the extent of this impoverishment is brought out clearly by table 4.08 and figures 4.03 and 4.04. The crosstabulation of caste with fathers' education revealed that a larger percentage of the SC/ST students' fathers were illiterate (47%) as compared to Non-SC/ST students' fathers (7%). With respect to higher education, the SC/ST students' fathers were below the Non-SC/ST students' fathers. Forty-four percent of Non-SC/ST students' fathers had completed their SSC, and some had continued their education, in comparison to only seven percent of SC/ST students' fathers. For the sake of completeness, it may be recorded that the chi-square

value of the attributes caste and father's education was 52.63, which was significant at the 0.00 level, that is, it rejected the null hypothesis that there is no relation between the caste of students and the education of fathers and led to the acceptance of the alternative hypothesis that caste and father's education are related.

To illustrate this point further, a one-tailed t-test for means was conducted, on the mean educational level of SC/ST fathers ($\bar{X}$ = 0.85) as compared to Non-SC/ST fathers ($\bar{X}$ = 2.4). Educational level as stated earlier was ranked from zero to five. The t-value of the differences in the means was -8.65 which was significant at the 0.00 level. *This led to the acceptance of the alternative hypothesis that SC/ST students' fathers had lower education as compared to Non-SC/ST students' fathers.* The crosstabulation of caste and mothers' education is presented in table 4.09, while the figures 4.05 and 4.06 present the same information graphically.

TABLE 4.09

Crosstabulation of caste and mothers' education

Caste		Illiterate	Primary	Secondary	SSC	SSC+	Postgradua tion	Total
SC/ST	N	61	8	6	-	-	-	75
	%	81%	11%	8%	-	-	-	100%
Non SC/ST	N	18	23	24	7	9	2	83
	%	22%	28%	29%	8%	11%	2	100%
Total	N	79	31	30	7	9	2	158*
	%	50%	19%	19%	4%	6%	1%	99%

* Missing values excluded

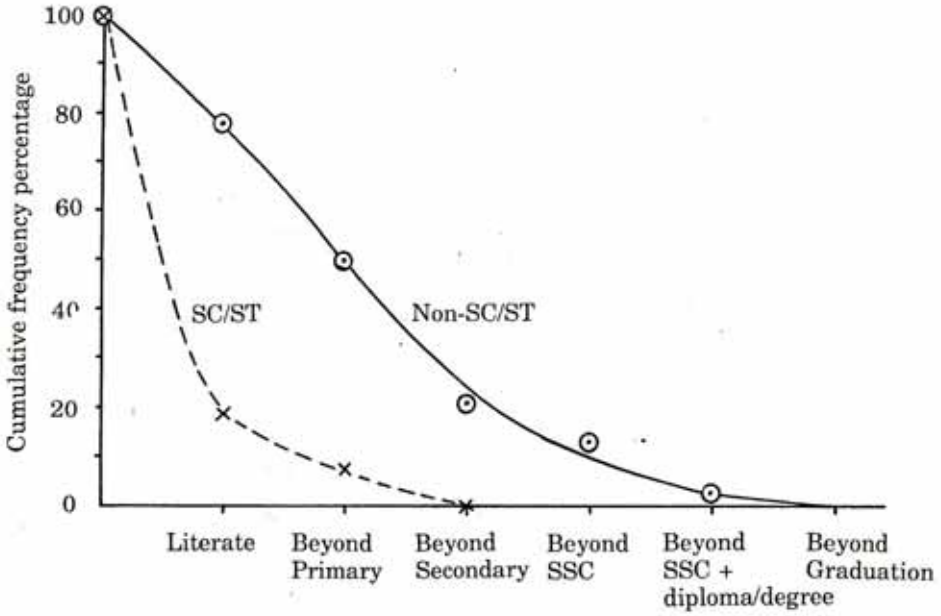

Fig. 4.05. Cumulative percentile distribution of paternal education respondents.

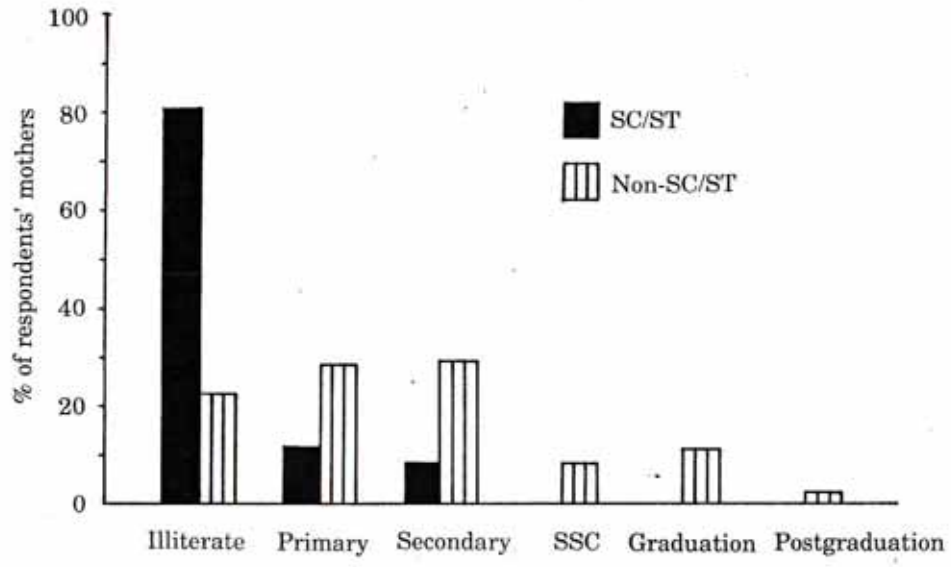

Fig. 4.06. Maternal education of respondents.

It is well known that mothers have a greater influence on the formative years of a child. Table 4.09 with figures 4.05 and 4.06 depict the paucity of maternal education among the SC/ST students. The crosstabulation of maternal education with caste also revealed that SC/ST students' mothers (81% illiterate) were less educated than Non-SC/ST students' mothers (22%). None of the mothers of SC/ST students had studied upto SSC, while 21% of Non-SC/ST students' mothers had studied up to SSC or beyond. The chi-square value for the attributes caste and education of mothers' was 59.21 and which was significant at the 0.00 level. Thus, the null hypothesis that there is no relation between caste and mothers' education was rejected. In order to understand the relationship a one-tailed t-test for the differences in the mothers' education of SC/ST students'($\bar{X}$ = 0.27) with the mean of Non-SC/ST students mothers' education ($\bar{X}$ = 1.66) was computed. The calculated t-value -8.60 was significant at the 0.00 level. *It led to the acceptance of the alternative hypothesis that mothers' of SC/ST students had lower educational achievements than mothers' of Non-SC/ST students.*

Students were also asked questions with regard to the education of their siblings. Forty-seven students, that is, 29% of the sample stated that they had siblings of, or past, the school-going age and who had never been to school, while 71% of the students did not have any uneducated siblings of a school-going age. A crosstabulation was conducted for the attributes of caste and education of siblings. The results of this crosstabulation are presented in table 4.10.

TABLE 4.10

Crosstabulation of caste with education of siblings

Caste\Education of siblings		Educated	Un Educated	Total
SC/ST	N	37	38	75
	%	49%	51%	100%
Non-SC/ST	N	76	8	84
	%	90%	10%	100%
Total	N	113	46	159*
	%	71%	29%	100%

* Missing values excluded (% are Row %)

The crosstabulation indicates that 51% of the SC/ST sample had uneducated siblings, of, or beyond the school-going age, while the same was the case in only 10% of the Non-SC/ST sample. The chi-square test of the attributes caste and education of siblings, had a value of 31, which was significant at the 0.00 level. This led to the rejection of the null hypothesis that there is no relation between caste and education of siblings. The one-tailed Z test for proportions computed on the proportion of uneducated siblings of SC/ST students to those of Non-SC/ST students had a value of 6.17 which is significant at the 0.00 level. *It led to the acceptance of the alternative hypothesis that more SC/ST students have uneducated siblings as compared to the Non-SC/ST students.* The number of uneducated siblings ranged from one to five, with the majority of students, that is, 43/47 (91%) of those having uneducated siblings stating the number to be one or two.

Thirty-three of the forty-seven students who had uneducated siblings stated that their sisters were uneducated (70%), while twenty-one students (45%) of those having uneducated siblings stated that their brothers were uneducated.

Students were also asked if they had any siblings educated beyond SSC. Thirty-five students, that is, 22% of the total sample had a sibling educated beyond SSC. Of these students eighty percent had brothers educated beyond SSC (28/35), while twenty-six percent stated that sisters were educated beyond SSC (9/35).

4.4.2 Family occupational background

The family occupational background, that is, the various occupations engaged in, by the parents, were analysed in terms of the seven point scale mentioned earlier. Zero, on the scale stood for missing data, and for mothers whose occupation was 'housewife'. As mentioned earlier, 'housewife' does not necessarily mean that housework is not a gainful occupation. Since, the term 'housewife' does not add much to the knowledge of the socio-economic status of the family, and since most mothers were involved in housework, it was considered equivalent to missing data. On the occupation scale, 1 stood for unskilled labour (agricultural labourers and domestic servants), 2 stood for semi-skilled work (making of pots, basket weaving, cooking, goldsmith, tailoring etc), 3 stood for skilled work (electrician, driver etc), 4 stood for the self-employed such as, farmers, fishermen, small business etc, 5 stood for clerical work, 6 for

lower-order professions such as, teaching, nursing etc while seven stood for higher-order professions such as, medical doctor, headmaster etc. Table 4.11 presents the break up of the occupations for fathers and mothers of the respondents. The same information is presented graphically in figures 4.07 and 4.08.

TABLE 4.11

Occupations of respondents' parents

Occupation	Fathers' of respondent		Mothers' of Respondents	
	Number	%	Number	%
Missing data(including housewife)	5	3	46	29
Unskilled	20	12	20	12
Semi-skilled	21	13	6	4
Skilled	8	5	5	3
Self-employed	71	44	74	46
Clerical	16	10	1	1
Lower-order professions	15	9	8	5
Higher-order professions	5	3	1	1
Total	161	99	161	101

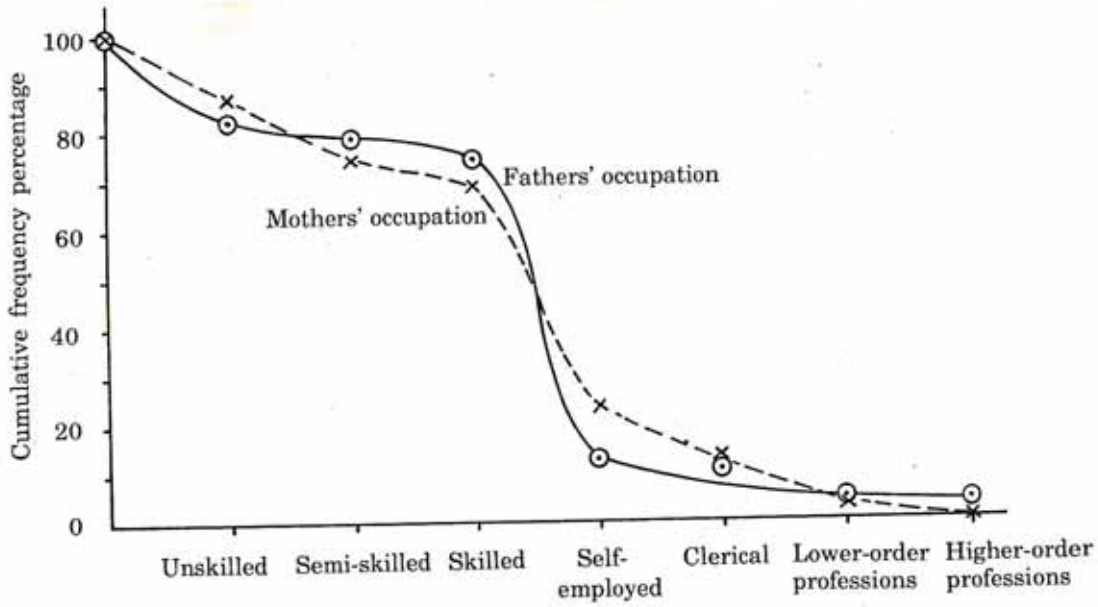

Fig. 4.07. Cumulative percentile distribution of respondents' parental occupations.

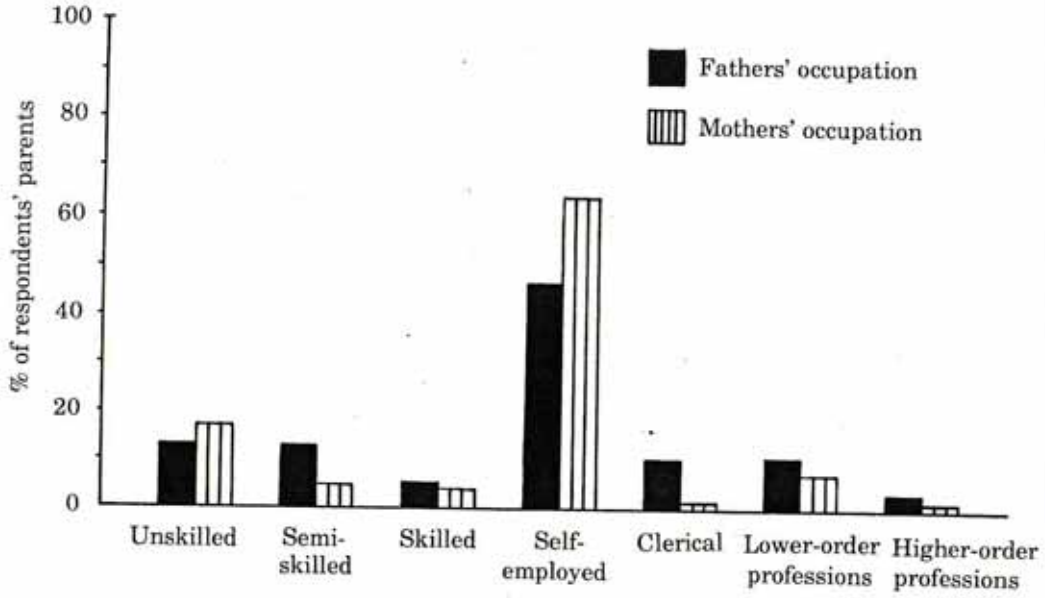

Fig. 4.08. Parental occupation of respondents.

From table 4.10 and from figures 4.07 and 4.08, it is seen that 29% of mothers were housewives, and almost half of the mothers (46%) were either involved in agriculture, fishing, or in some small business. The number of self-employed fathers was also equivalent, that is, 44% of the sample. While 22% of the fathers are above the self-employed category, only 7% of mothers are above this category.

The crosstabulation of paternal occupation with students belonging to SC/ST or Non-SC/ST groups was undertaken. The results are presented in table 4.12 and figures 4.09 and 4.10.

TABLE 4.12

Paternal occupation and caste

Occupational Categories	$\bar{X}$ SC/ST		$\bar{X}$ Non-SC/ST		Total	
	N	%	N	%	N	%
Unskilled	17	23	3	4	20	13
Semi-skilled	12	16	9	11	21	14
Skilled	2	3	5	6	7	5
Business/Self-employed	37	50	33	41	70	46
Clerical	2	3	14	18	16	10
Lower-order professions	3	4	12	15	15	10
Higher-order professions	1	1	4	5	5	3
Total	74	100	80	100	154	101

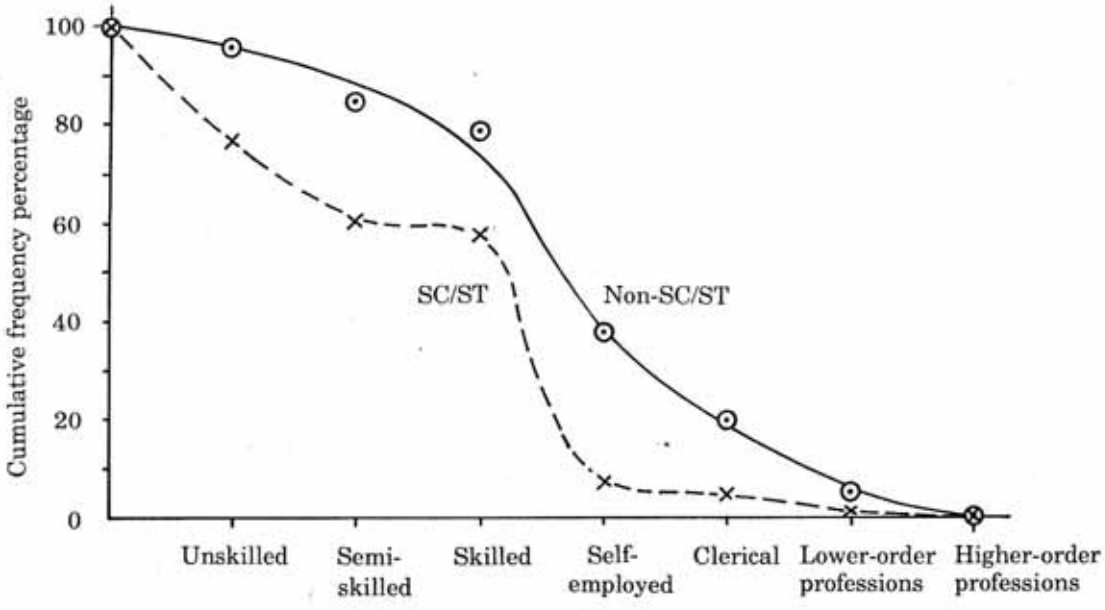

Fig. 4.09. Cumulative percentile distribution of respondents' paternal occupations.

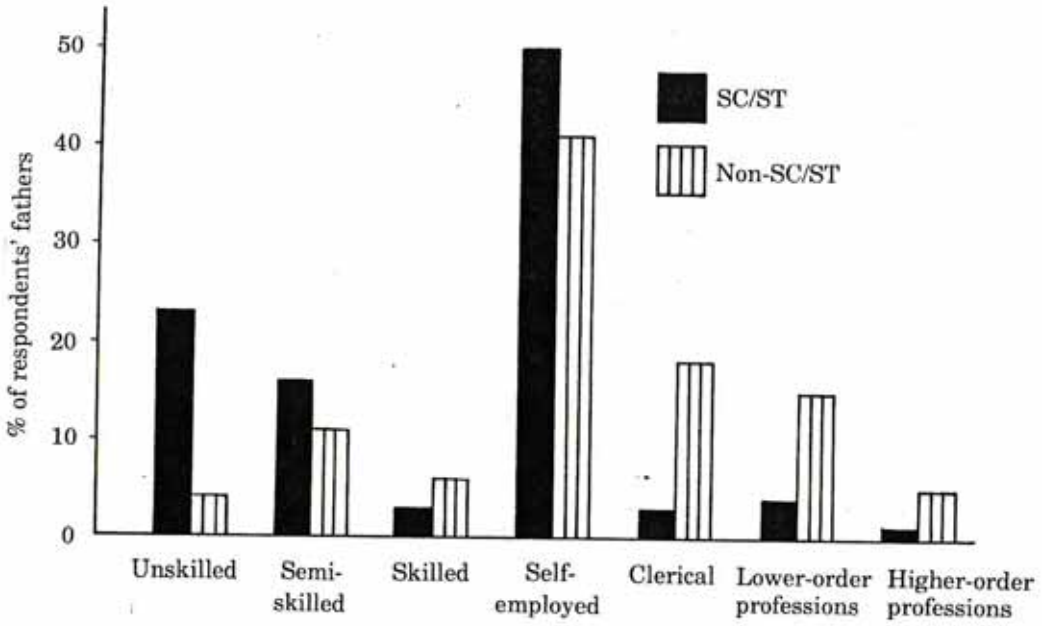

Fig. 4.10. Paternal occupation of respondents.

The crosstabulation of caste with occupation indicated, that, in the case of SC/ST students, the paternal occupation was more towards the lower end of the scale, as compared to the Non-SC/ST students whose paternal occupation was towards the higher end of the scale. The chi-square test of the attributes caste with paternal occupation had a value of 27.75, which was significant at the 0.00 level. This led to the rejection of the null hypothesis, that there is no relation between paternal occupation and caste. The one-tailed t-test, conducted on the occupation of fathers' of SC/ST students ($\bar{X}$=3.11) and Non-SC/ST students ($\bar{X}$=4.23) had a t-value of -4.71, which was significant at the 0.00 level. Thus, the alternative hypothesis that the mean value of the occupation of fathers of SC/ST students was significantly lower than the mean value of paternal occupation in the Non-SC/ST group, was accepted.

With regard to maternal occupation too, similar crosstabulation with caste was undertaken. Table 4.13 and figures 4.11 and 4.12 present the results of this crosstabulation.

TABLE 4.13

Maternal occupation and caste of students

Occupational categories	SC/ST		Non-SC/ST		Total	
	N	%	N	%	N	%
Unskilled	17	27	3	6	20	18
Semi-skilled	2	3	4	8	6	5
Skilled	1	2	4	8	5	4
Business/Self-employed	44	69	29	58	73	64
Clerical	-	-	1	2	1	1
Lower-order professions	-	-	8	16	8	7
Higher-order professions	-	-	1	2	1	1
Total	64	101	50	100	114	100

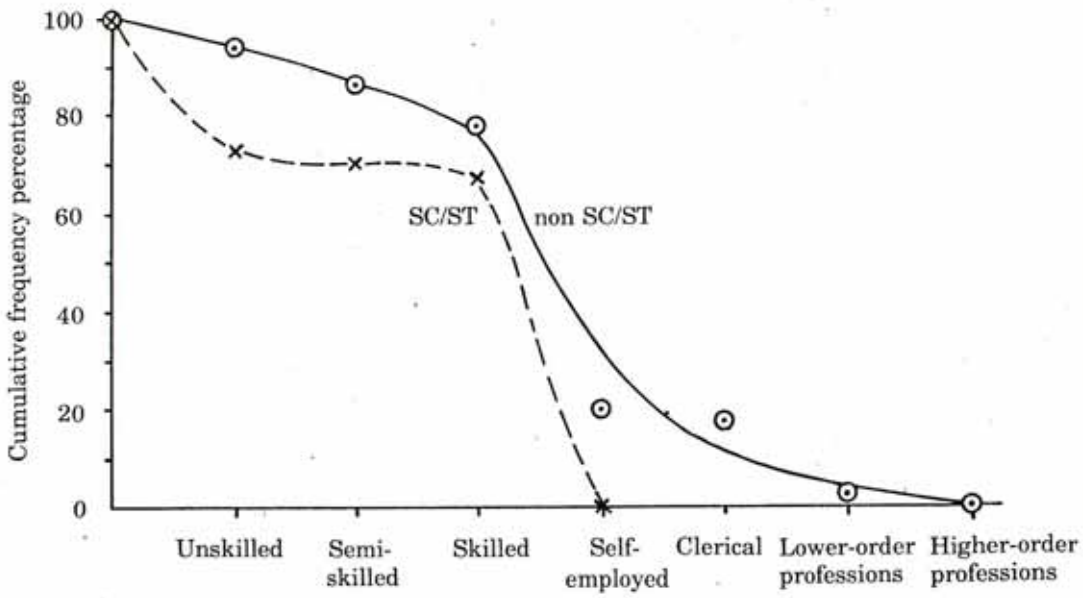

Fig. 4.11. Cumulative percentile distribution of respondents' maternal occupations.

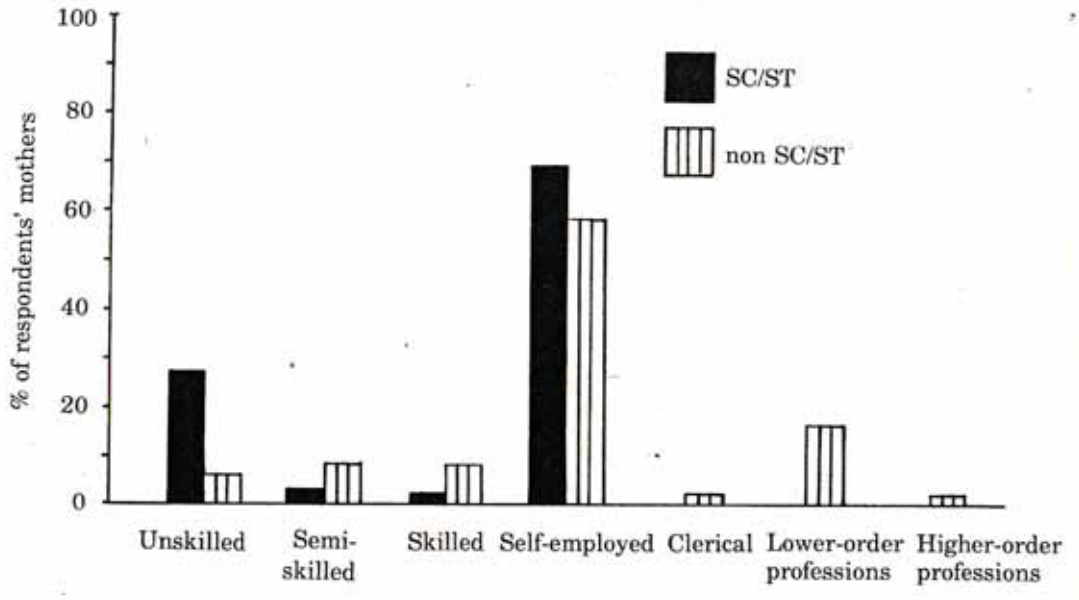

Fig. 4.12. Maternal occupations of respondents.

Table 4.13 indicates the same trend as table 4.12, with occupations of mothers of SC/ST students being concentrated at the lower end of the scale ($\bar{X}$ = 0.27), and occupations of Non-SC/ST students' mothers being spread all over the scale ($\bar{X}$ = 1.66). No SC/ST students' mothers were engaged in clerical and professional work. The one-tailed t-test conducted on the mean values of occupations of SC/ST and Non-SC/ST mothers had a t-value of -3.37 which was significant at the 0.00 level. This led to *the acceptance of the alternative hypothesis that SC/ST students' mothers had a lower occupational mean than Non-SC/ST students' mothers* (taking mean values is a correct procedure as the scale is an ordinal one and therefore statistics available for interval scales are applicable (Kerlinger)).

Thus, both paternal and maternal occupations of Non-SC/ST students were higher than SC/ST students' parental occupations. Students were also asked if the father's occupation was a traditional or non-traditional one. The responses of students are presented in Table 4.14.

TABLE 4.14

The traditionality of father's occupation

Categories	Number of Fathers	%
Traditional	93	58
Non-traditional	54	34
Missing	5	3
Both traditional and Non-traditional	9	6
Total	161	101

Fifty-eight percent of the students, stated that the father's occupation was a traditional one, while thirty-four percent, stated that their father was involved in a non-traditional occupation. Six percent of the students stated, that their fathers were involved in both a traditional and a non-traditional occupation. Three percent of the students did not answer as they had not earlier stated paternal occupation. A crosstabulation of caste with traditionality of occupations was conducted and the results are presented in table 4.15.

Table 4.15

Caste and traditionality of fathers' occupation

Caste	Traditional		Non traditional		Traditional and non traditional		Total	
	No	%	No	%	No	%	No	%
SC/ST	55	74	15	20	4	5	74	48
Non-SC/ST	37	46	38	48	5	6	80	52
Total	92	60	53	34	9	6	154	100

The Chi-square test of the attributes caste and traditionality of fathers' occupation, had a value of 13.40, (d.f=2 probability 0.00) leading to the rejection of H_0, that there is no relation between caste membership and the traditionality of fathers' occupation. A Z value was computed between the proportions of SC/ST and Non-SC/ST students whose fathers had a traditional occupation. The fathers who were engaged in non-traditional occupations and both non traditional and traditional occupations were combined together for the purpose of this Z test. A Z value of 3.71 was computed, which led to *the acceptance of the one-tailed H_o that fathers of SC/ST students were engaged in traditional occupations more often than fathers of Non-SC/ST students.*

4.4.3 Family income

Family income was one of the variables measured in the calculation of socio-economic status. The monthly income of the family, as stated by the respondents was categorised and is presented in Table 4.16. (Though it was

possible to have utilised per capita familial income, rather than monthly income the latter was used for two reasons. Firstly, the incomes stated by students are not accurate enough to stand up to a factor of division by the number of family members and secondly, the family sizes did not vary drastically as the crosstabulation of caste and family size had indicated. The differences between SC/ST and Non-SC/ST students with respect to family size were not significant).

TABLE 4.16

Monthly familial income of the respondents

Categories of Family Income	Number of Respondents	% of Respondents
< 500	42	26
501 - 1000	39	24
1001 - 2000	50	31
2001 +	26	16
Missing	4	3
Total	161	100

The monthly familial income ranged from below five hundred rupees a month to twelve thousand rupees a month. (Only one student reported this as the family income, but he supported this by stating that the family owned two large shipping boats, one of which was hired to others.) Four categories of the monthly familial income were created in such a way that no category had too few or too many occupants. Twenty-six percent of the sample stated, that the monthly familial income was below five hundred rupees a month. Twenty-four percent of the sample had an income range of rupees 501 to 1000 a month. Thirty-one percent of the sample had a monthly income of rupees 1001 to 2000

a month, while sixteen percent of the sample had an income more than 2000 rupees a month. Three percent of the sample could not give an adequate reply to this question.

A crosstabulation of caste of the students was done with the categorised familial income of the family. Table 4.17 presents this data.

TABLE 4.17

Monthly familial income and caste of students

Caste\Family Income		< 500 Rs/Month	501-1000 Rs/Month	1001-2000 Rs/Month	2001 Rs/Month	Total
SC/ST	N	31	18	20	3	72
	%	43	25	28	4	47
Non-SC/ST	N	10	21	29	23	83
	%	12	25	35	28	54
Total	N	41	39	49	26	155
	%	27	25	32	17	101

The crosstabulation of income with caste indicates, that SC/ST students report lower monthly familial incomes than Non-SC/ST group. The chi-square value of the attributes caste and monthly familial income, was 27.38 which was significant at the 0.00 level. A one-tailed t-test was conducted on the mean values for family income (categorised) reported by the two groups. A t-value of -5.48, having a significance level of 0.00, indicated that the mean monthly familial income of the SC/ST group ($\bar{X}$=1.93), was statistically lower than the mean monthly familial income of the Non-SC/ST group ($\bar{X}$=2.75). *This led to the rejection of the null hypothesis, of no difference in monthly family incomes of the*

two groups. The alternative hypothesis, that Non-SC/ST students have higher mean monthly familial incomes than SC/ST groups was accepted.

4.4.4 Socio-economic status of the family

The socio-economic status of the family (SES) was measured in terms of the SES scale mentioned earlier (Chapter II). The SES scale was derived from the variables, *parental* education, *parental* occupation and *income* of the family. As stated earlier, paternal occupation was used for measuring SES of the family rather than maternal occupation. One reason for this discrimination was that a large number of mothers (29%) were reported to be housewives. As the category housewife does not add much to the status of the family and leads to an unbalanced scaling, it was dropped from calculation of SES unless, the father was dead or separated. In such cases, the maternal occupation, if stated, was substituted for paternal occupation.

The socio-economic status of the family, calculated in this manner ranged from 1 to 19, though theoretically, the status scale could have ranged from 1 to 21. The scale was divided into three categories, that is, low SES, average SES and high SES in order to facilitate analysis.

On the basis of the first quartile forming the low SES group, the second and third quartile forming the average SES group and the fourth quartile forming the high SES group, the ranges which marked the three groups were, 1-5

low SES group, 6-10 average SES group and 11-19 high SES group.

The crosstabulation of caste with SES was conducted and is presented in the next section. A crosstabulation of caste membership with SES was conducted in order to learn whether membership in SC/ST or Non-SC/ST groups had any relation to SES. Table 4.18 presents the crosstabulation of caste membership with SES categories, while figures, 4.13 and 4.14 present pictorial representation of the same.

TABLE 4.18

Crosstabulation of caste and SES scale

Caste Membership	Low SES N	%	Average SES N	%	High SES N	%	Total N	%
Not mentioned	1	50	1	50	-	-	2	1
SC/ST	33	44	39	52	3	4	75	47
Non-SC/ST	7	8	37	44	40	48	84	52
Total	41	26	77	48	43	27	161	100

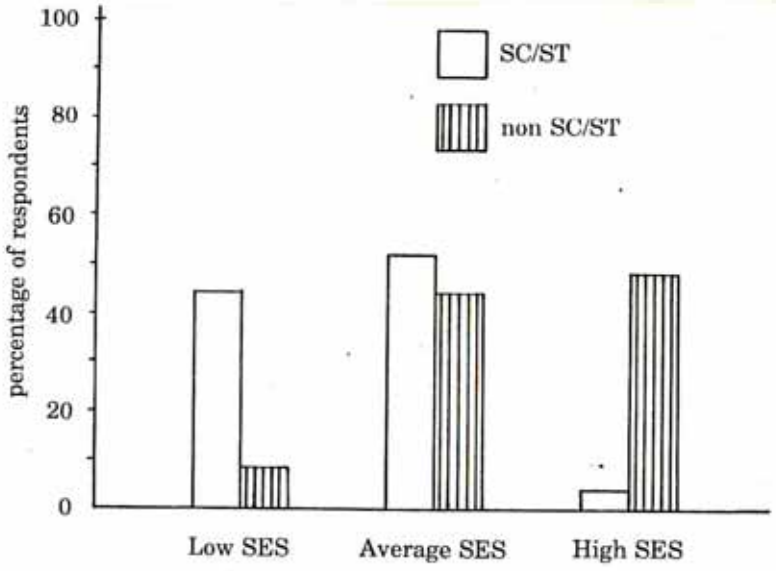

Fig. 4.13. Caste and SES.

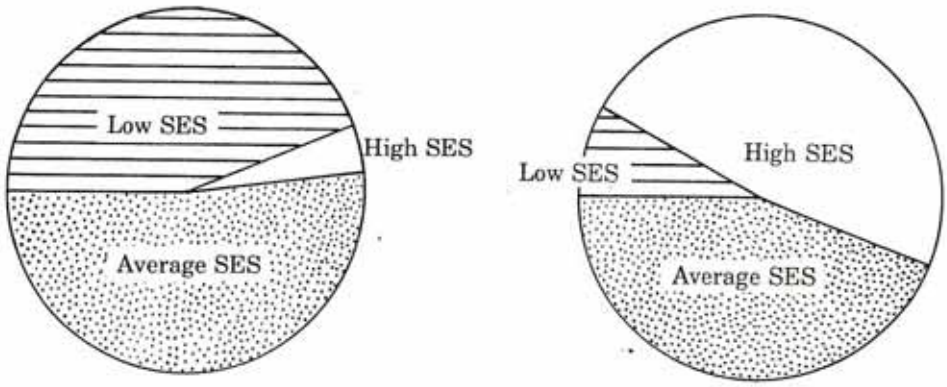

Fig. 4.14. Pie-diagram of Caste and SES.

Table 4.18 and figures, 4.13 and 4.14, indicate that there are more Non-SC/ST students in the high SES category (48%) as compared to SC/ST students (4%). While the average SES category does not distinguish between SC/ST and Non-SC/ST students,(52% and 44% respectively), there are more SC/ST students (44%) but few Non-SC/ST students (8%) in the low SES category. A chi-square test was conducted in order to learn if there was a relation between caste membership and the socio-economic status of the family. The χ^2 value of 49.57 with a level of significance 0.00, led to the rejection of the null hypothesis, that there is no relation between caste membership and SES.

In order to learn more about the proportion of SC/ST and Non-SC/ST students in low and high status groups, two one-tailed Z tests were conducted (The average status group had very similar percentages of SC/ST and Non-SC/ST students. It was, therefore, not necessary to test the proportions in the

average SES groups). The proportion of SC/ST and Non-SC/ST students in low or high SES group was calculated, by combining the average group, with the group not being tested at the moment. In both the situations, H_0, the null hypothesis of no relation between membership in SC/ST or Non-SC/ST groups and belonging to (a) high SES and (b) low SES groups, was rejected. In the test of proportions of belonging to high SES, the *alternative hypothesis, that SC/ST students are under represented in this group as compared to Non-SC/ST students was accepted* (Z value -7.46, significance level 0.00, one-tailed). In the second test with respect to belonging to low SES groups, *the alternative hypothesis, that SC/ST students are over represented in the low SES group as compared to Non-SC/ST students was accepted* (Z value 5.58, level of significance=0.01, one-tailed).

The above Z tests indicate, that membership in low socio-economic strata is related to being a SC/ST student inspite of the fact that caste was not used as an indicator of socio-economic status. This relation of the SES scale to membership in SC/ST groups validates the scale.

4.5 Home environment for literacy

The information presented up till now indicates, that SC/ST students have a deprived home background, in the sense, that their parental education is lower than that of Non-SC/ST students. More SC/ST students had siblings, of and beyond, the school-going age who were uneducated. The parents of SC/ST

students were involved in occupations much lower than those engaged in by parents of Non-SC/ST students. The family income of SC/ST students was lower than that of Non-SC/ST students and the SC/ST students were concentrated in the low SES category as compared to the Non-SC/ST students, who were concentrated in the high SES category.

Respondents were asked other questions with regard to the conduciveness of the home environment to literacy. Students were asked, who in their house/family circle had the highest education. Various responses were provided by students, such as, father (21% of the sample), mother (2%), brother (23%), sister (6%), grandfather (1%), uncle (11%), cousins (4%), aunt (3%), siblings (2%), both parents (1%) and the student himself/herself (27%). The last figure is quite high (27%) and indicates a great deal about the family literacy level, where the student in secondary school is the most educated person in the family. This again corroborates the earlier finding, that 25% of the sample are first generation learners.

Fifty-six percent of the sample stated a male member to be the most educated person in the family. Contrasting this figure, with the number of times a female was stated to be the most educated person in the family, we see that women specifically were named only by 11% { mother (2%), sister (6%) and aunt (3%)} of the sample.

Those who stated that they themselves were the most educated (27%) were concentrated upon, in order to learn the sex and caste distribution of

such students. Seventy percent of those who said that they were the most educated in their family were boys (31/44), while 30% were girls. Caste-wise 80% of those who were the most educated in their families were SC/ST students and 20% were Non-SC/ST students.

These figures emphasise the deprivation of SC/ST students and girls. The SC/ST students have a poor home background for literacy and hence larger numbers of SC/ST students, as compared to the Non-SC/ST students state that they are the most educated in their families. On the other hand, more boys than girls state that they are the most educated in the family. Thus, within the SC/ST groups also, it is the boys who receive most opportunities for education and girls are under-represented in the category of the most educated person in the family.

Students were asked to state what was the educational qualification of the person who was the most educated in the family. The highest educational qualifications were: secondary education (29%), SSC education (27%), SSC + and graduation (34%), Postgraduation (2%), Graduation+ (8%) and unaware (1%).

Thus, secondary schooling was the highest educational qualification reported by most of the students (29% of the sample), while postgraduation was reported only by 2% of the sample.

4.5.1 Students receiving academic help

Students were asked if their parents helped them academically. Only 19% of the sample stated that they were helped academically by their parents in the present. Fourteen percent of the students stated that their parents had helped them academically during their primary schooling, however, in secondary schools, their parents were unable to help them.

Totally, 67% of the sample stated that they never received any help from their parents academically. This indicates that the students home environment for literacy is low.

Students were asked to state who helped them academically when their parents did not help them and the answers are presented in table 4.19.

TABLE 4.19

Academic help received by students (N=131)

Person helping academically	Number	%
No one	63	48
Brother	22	17
Sister	7	5
Teacher	7	5
Neighbours	2	2
Tuitions	5	4
Friends	6	5
Other family members	15	11
Teacher + Friends	3	2
Siblings	1	1
Total	131	100

Table 4.19 reveals, that almost half the students stated that no one helped them with their academics, while of those who were helped, the persons helping were their brother, sister, other family members, friends or teachers.

Students were also asked about their parental involvement in their education, in other ways, such as, parents insisting that their child study and pass in their examinations. Ninety-two percent students stated that their parents insisted on their doing well in the examinations.

Students were also asked, if their parents contacted the teachers to learn about the progress of their wards. Thirty-three percent of the students said that their parents did so, while 62% said that their parents never contacted the teachers. In the case of 5% of the students, the question was not relevant as one of their parents was either a teacher or an employee at the school.

4.5.2 Availability of reading material

Various questions were asked to students to find out the availability of reading materials at their homes. Only thirty-five percent of students stated that books (fiction or non-fiction) were available at their homes. The question asked to students was, whether even one non-textual book was available at their homes. With reference to newspapers, only twenty-five percent of the sample stated that they had access to newspapers while 74% stated, that they had no access to newspapers in any way.

Students were also asked if they had any access to a library (even a school library). Fifty-five percent of the students stated that they had access to a library in some manner e.g., through some family member or through the school. However, forty-four percent of the students stated that no library was accessible to them.

4.6 Summary

With reference to home background of literacy, it is seen that the student himself/herself was the most educated person in the family in many instances. The student who was the most educated person in the family, was in most cases a SC/ST student (80%). Where parents were educated, the level of education was only up to the secondary school level in many cases and hence, parents were unable to help their children academically. A large percentage of students (64%) did state that their parents had never helped them in their studies. This can be linked to the conclusion of the first chapter, that, SC/ST students are not getting the full benefits of educational opportunities, as they are only one-thirds of the school going population, inspite of being two-thirds in the total population. Contact between teachers and parents to learn about the progress of the students took place rarely, if ever. With respect to supplementary reading material, most students did not have access even to newspapers, let alone books. The students, thus, have home backgrounds not very supportive to education and hence, the role played by the school in providing information could be extremely important.

4.7 Childhood career choice

Students were asked if they had held any childhood career choice (CCC), that is, were any career aspirations held by them during childhood. Of the total sample, 96% (155/161) stated that they did hold career choices as children. Only 4% of the sample (6/161) had no childhood career aspirations.

Students were asked what these career choices were the responses, as classified according to the scale of occupations, are presented in table 4.20.

TABLE 4.20

Childhood career choices of respondents

Occupation	Number of Respondents	Percentage
Not Applicable	6	4
Glamorous	3	2
Semi-skilled	3	2
Skilled	7	4
Self-employed	7	4
Clerical	2	1
Lower-order professional	89	55
Higher-order professional	34	21
Any	10	6
Total	161	99

From table 4.20, it is clear that the childhood aspirations of the respondents were towards the higher end of the scale. Totally seventy-six percent of the sample have chosen professional occupations in their childhood. Fifty-five percent have chosen lower-order professional careers, while twenty-one percent have chosen higher-order professional careers. Clerical choices were chosen by very few students, that is, one percent of the sample. Self-employment was also chosen by few students, that is, four percent of the sample, and skilled and semi-

chosen by few students, that is, four percent of the sample, and skilled and semi-skilled work by four percent and two percent of the sample respectively.

Four percent of the respondents, stated that the question was not applicable in their case, as they had no childhood career choice and six percent of the respondents stated that their aspiration was to do some job but it was not specified. In two percent of the cases, students chose unusual careers like being a cricketer or artist, necessitating the creation of a separate category of glamorous occupations.

The conclusions that can be drawn from the above table are:

1. Childhood aspirations aim at the higher end of the scale.
2. Even in childhood, white-collar occupations are preferred substantially to blue-collar ones.

What are the lower-order professional careers which were chosen by more than half the respondents? Teaching (50/161 or 31% of the sample), Nursing (16/161 or 10% of the sample), Police inspector (6% of the sample) and Military (9% of the sample) were the professional choices of the students. 'Military' choices are considered lower-order professions here, as the choices were mainly, 'Sainik'.

The higher-order professions chosen by the students were: Doctor (24/161 or 15%), Engineer (7/161 or 4%), Lawyer (1/161 or 1%) and Pilot (3/161 or 2%). These higher-order professions were chosen by 22% of the sample.

4.7.1 Sex and Childhood career choices

In order to learn if sex as a variable had any impact on childhood career choices, a crosstabulation of sex with the categories of childhood career choice was conducted. Table 4.21 presents this crosstabulation.

TABLE 4.21

Sex and childhood career choices

Childhood career choices	Boys		Girls		Total	
	No.	%	No.	%	No.	%
Not applicable/missing	3	3	3	5	6	4
Any job	5	5	5	8	10	6
Semi-skilled	2	2	1	1	3	2
Skilled	7	8	-	-	7	4
Self-employed	7	8	-	-	7	4
Clerical	-	-	2	3	2	1
Lower-order professional	45	48	44	66	89	55
Higher-order professional	23	25	11	16	34	21
Glamorous profession	2	2	1	1	3	2
Total	94	108	67	100	161	99

The crosstabulation of sex with childhood career choice shows differences in many categories of occupations. The differences were most striking in the category, lower-order profession. Forty-eight percent of the boys had chosen lower-order professions, while 66% of the girls had chosen this category. The Z test of proportion for these two percentages had a Z value of 2.57, which was significant at the 0.05 level. Thus, for this category, the null hypothesis of no difference between girls' and boys' choices was rejected and the alternative hypothesis of girls preferring lower-order professional choices was accepted. The

overall chi-square, covering occupations of all categories, (except those labelled 'missing', 'any', and 'glamorous'), rejected the null hypothesis that there is no relation between career choice, with relation to sex (χ^2 = 16.37, probability 0.01). The t-test computed for the means of occupational categories between sexes had a 't' value of -1.72 which is statistically not significant enough to reject the null hypothesis of no difference between the sexes (0.09 probability).

One category as stated above, namely, that of lower-order occupations, however, has shown a difference. Girls had more lower-order professional choices as compared to boys. Within the lower-order professional category too, there were differences between the choices of girls and boys. Table 4.22 presents the different choices of girls and boys within this category.

TABLE 4.22

Sex and lower-order professional careers

Sex		Teacher	Police Inspector	Nurse	Teacher +Nurse	Sewing +Nurse	Military	Total
Male	N	24	7	-	-	-	14	45
	%	53	16	-	-	-	31	100
Female	N	25	3	14	1	1	-	44
	%	57	7	32	2	2	-	100
Total	N	49	10	14	1	1	14	89
	%	55	11	16	1	1	16	100

Table 4.22 reveals that nursing, considered a lower-order profession, was selected by none of the boys, while 36% of girls (who had chosen lower-order professions) had a childhood career choice of being a nurse. The same

situation in the reverse direction, applied to military careers, which were selected by 31% of boys (who had chosen lower-order professions), but by none of the girls. Thus, though overall categories of occupation showed no statistically significant sex differences, the category of lower-order professions showed that choice of some careers was significantly different for the two sexes.

4.7.2 Caste and childhood career choices

The crosstabulation of caste with childhood career choices was conducted in order to learn, whether childhood career choices varied with membership in SC/ST or Non-SC/ST grouping. Table 4.23 presents the crosstabulation of caste with childhood career choice.

TABLE 4.23

Caste and childhood career choice

Occupation	SC/ST		Non-SC/ST		Total	
	No.	%	No.	%	No.	%
Semi-skilled	2	3	1	1	3	2
Skilled	3	4	4	5	7	4
Self-employed	2	3	5	6	7	4
Clerical	-	-	2	2	2	1
Lower-order professional	52	69	35	42	89	55
Higher-order professional	10	13	24	29	34	21
Glamorous	-	-	3	4	3	2
Missing	4	5	2	2	6	4
Any job	2	3	8	10	10	6
Total	75	100	84	101	169	99

The chi-square value of the test of the attributes, caste and childhood career choice was 12.82, significant at the 0.05 level of significance, (excluding missing value, any job and glamorous) led to the rejection of the null

hypothesis, that caste is unrelated to childhood career choice. Though the Non-SC/ST group had a higher mean childhood career choices ($\bar{X}$ = 5.94), as compared to the SC/ST group ($\bar{X}$ = 5.84), the t-value was not significant (-0.54, probability 0.59).

4.7.3 Age at which childhood career choices were made

Students were asked to state the age at which the career choices were made. Seven respondents (4%) did not answer this question. Eleven respondents, (7% of the sample) stated that the choice was made before 5 years of age while ninety-nine respondents (62% of the sample), stated that the choice was made between the ages of six to ten.

A crosstabulation of age of decision-making with the childhood career choice (Table 4.24) indicated that there was no relation between the two. (χ^2 value 5.81 with 10 degrees of freedom and a significance level of 0.83).

TABLE 4.24

Age and career choices

Age	Semi-skilled	Skilled	Self-employed	Cler-ical	Lower-order profess-ional	Higher-order professional	Total
1-5 years	-	-	-	-	9 82%	2 18%	11 8%
6-10 years	2 2%	6 7%	5 6%	1 1%	51 57%	24 27%	89 63%
4-15 years	1 2%	1 2%	2 5%	1 2%	29 71%	7 17%	41 29%
Total	3 2%	7 5%	7 5%	2 1%	89 63%	33 23%	141* 100%

* Missing/Indecipherable values excluded

Table 4.24 indicates that students who had made career choices while in the lowest age group or when they were very young, that is, between 1 to 5 years, made (lower-order or higher-order) professional choices. But with increasing age, the students did make choices other than professional ones. However, as stated above, the differences in the choices of lower and higher age group students were not statistically significant. The H_o that there is no relation between age and kind of choices made by students was accepted.

4.7.4 Childhood career choices and academic performance of students

The academic performance of students as categorised into low, average and high performance was crosstabulated with the childhood career choices of students. This was an attempt to learn whether higher academic performance is in any way related to higher career choices.

TABLE 4.25

Childhood career choice and academic performance

Academic Performance	Semi-skilled	Skilled	Clerical	Lower-order Professional	Higher-order Professional	Total
Low	1 3%	-	-	23 66%	8 23%	35 101%
Average	2 4%	4 7%	1 2%	31 57%	14 26%	54 100%
High	-	1 3%	1 2%	19 59%	11 34%	32 99%

The χ^2 value of the attributes, 'academic performance', and

'childhood career choice' was 9.22 with ten degrees of freedom and had a significance level of 0.51 which led to the acceptance of H_0 that there is no relation between academic performance and childhood career choice.

4.7.5 Childhood career choice and SES of the respondents

The crosstabulation of childhood career choice with the socio-economic status of the respondents was conducted. Table 4.26 presents this crosstabulation.

TABLE 4.26

Childhood career choice and SES

Childhood career choice	SES			
	Low	Average	High	Total
Semi-skilled	1 (3%)	1 (2%)	1 (3%)	3 (2%)
Skilled	2 (5%)	3 (4%)	2 (5%)	7 (5%)
Self-employed	1 (3%)	5 (7%)	1 (3%)	7 (5%)
Clerical	-	1 (2%)	1 (3%)	2 (1%)
Lower-order Professional	27 (71%)	43 (64%)	19 (51%)	89 (63%)
Higher-order Professional	7 (18%)	14 (21%)	13 (35%)	34 (24%)
Total	38 (100%)	67 (100%)	37 (100%)	142 (100%)

A χ^2 value of 6.80 with ten degrees of freedom was obtained for the attributes childhood career choice and SES (0.74 significance) which led to the acceptance of H_0 that the CCC are unrelated to SES. It was interesting to learn why there is no correlation between SES and childhood career choice. For this purpose, childhood career choice was crosstabulated separately with each of the three components of SES, that is, with parental education, occupation and family

income. The crosstabulation of CCC with father's education (χ^2= 26.24, d.f=25 and significance level 0.39) as well as mother's education (χ^2= 28.25, d.f=25, significance level 0.30) showed that parental education was not related to childhood career choice. It was decided to recode education as illiterate/literate to see if literacy of parents was in any way related to the childhood career choices. Even this recoding indicated that childhood career choice was not related to parental education. Father's and mother's education coded in this manner had χ^2 values of 3.07,(d.f=5, significance level 0.69) and χ^2 values of 3.99 (d.f=5, significance level 0.55) respectively with childhood career choices H_o of no relation in both instances, were accepted. Similar results were found with father's occupation (χ^2 value=35.71, d.f=30, significance level 0.22) and family income (χ^2=22.07, d.f=15 and significance level 0.11). Thus, the SES of the family and childhood career choice were unrelated.

4.7.6 Childhood career choices and reasons for the same

Respondents were asked why they had made the particular choices, that is, what were their reasons for making a particular career choice. Various reasons stated by students for making their career choices were categorised in the following way:

TABLE 4.27

Reasons for childhood career choice

Reasons	Number	%
Peer Group Influence	8	4
Self (1) Attracted to the occupation	42	22
(2) Some personal experience	14	7
Family (1) Parents	13	7
(2) Siblings	2	1
(3) Family + Family business	37	20
Schools/Teachers	19	10
Ideals (1) Glamour/Prestige	4	2
(2) To help society	7	4
Media	9	5
Faesibility	1	1
Financial need	15	8
Neighbours' influence	2	1
Missing	14	7
Total	187*	100

* More than one response

Table 4.27 indicates that the largest categories of reasons stated were self decisions on the basis of attraction or some personal encounters (30%). What was termed as personal encounter? It referred to an exposure to a certain vocation or to the carrying out a certain vocation. The family, was one of the next largest group of reasons, for the career decisions of the students (28%). The family group of reason had subgroups such as, parental influence, influence of siblings and influences from the family in general, which included consideration for continuing the family business.

Schools and teachers were the next reason stated for the career choice (10%) followed by financial need (8%), ideals (6%), and peers (4%). Thus, finance was not an important influence on childhood career choices as compared to self interests/decisions, and family influence. Schools also do not

appear to be playing a significant role in influencing childhood career choice.

A variant of this question was 'What/Who has influenced you in making this career decision?' Table 4.28 presents the various influences stated by students as having affected their career decision-making.

TABLE 4.28

Influences on childhood career choices

Influences	Number	%
Parents	2	1
Father	18	11
Mother	7	4
Family	17	10
Brother	5	3
Family Circumstances	3	2
Peers	6	4
Neighbours	1	1
Media	7	4
Experience	13	8
Teachers	10	6
Love for Country	1	1
Attraction	1	1
Not Applicable/No one	63	39
Total	164*	101

* More than one influence stated by respondents.

Table 4.28 indicates that as many as 45% of the students said that the question was inapplicable or stated the absence of any outside influence. This implies that a significant fraction of students made choices on their own. It is interesting to compare this with the fact that more than half (29%) of the remaining 55% responses, state that their parents and their family had influenced their childhood career choices. Thus, the family is seen as a major influence on childhood career choices.

Teachers (6%), personal experiences (8%), peers (4%) and media (4%) were mentioned by the remaining students.

That the family influences career decisions strongly in childhood, is established by the two findings:

(1) With reference to influences on childhood career choice, more than half of the respondents stating an influence, stated the family as the influence, that is, (59/91 responses).

(2) Of the reasons for selecting a career choice, familial reasons were stated by 28% of the sample.

Apart from the direct influence, familial background could have considerable indirect influence which is difficult to pinpoint or to articulate in a study of this scope and nature. Obviously, SES of the family governs its social interactions, which may limit opportunity to meet people in varied occupations and positions or exposure to a variety of situations. Thus, the personal experiences/encounters and attraction/self interest in an occupation are all affected by the family.

4.7.7 Reactions of the family to the childhood career choice

The childhood choices of the respondents were expected to elicit various reactions from the family members. In this context, students were asked to state, if their families were aware of their childhood career choices. Table 4.29 presents the awareness of parents regarding the students career choice.

TABLE 4.29

Parents' awareness of the childhood career choices

Parents' awareness of students career choices	Girls		Boys		Total	
	N	%	N	%	N	%
Aware	44	66	43	46	87	54
Not Aware	20	30	48	51	68	42
Not Applicable	3	5	3	3	6	4
Total	67	101	94	100	161	100

Table 4.29 indicates that in the entire sample, the number of parents aware of their children's career choices (54%) is only slightly more than the number of parents unaware of the children's career choice (42%). The sex-wise distribution of parental awareness indicates, that parents of girls (66%) were more aware of the childhood career choice, as compared to parents of boys (46%). The χ^2 value for the variables sex and parental awareness was 7.22. It was significant at the 0.03 level (two-tailed probability) and led to the rejection of the null hypothesis, that there is no relation between sex and parental awareness, in favour of the alternative hypothesis, that there is some relation between the variables of sex and parental awareness. In order to learn the direction of the significance, a Z test for proportions was conducted. A Z value of 2.56 which was significant at the 0.05 level (one-tailed probability) led to the rejection of the null hypothesis, that awareness of child's choice by parents is not related to the sex of the child and the acceptance of the alternative hypothesis, that girls' parents are more aware of their ward's choices, as compared to boys' parents. It was interesting to

understand why parents were significantly more aware of girls' career choices as compared to those of boys. One possible reason could be that girls spend more time at home than boys, especially during the evenings, leading to a richer interaction with the family.

For parents who were aware of their children's career choices, it was considered relevant to know their attitudes towards career choices. Table 4.30 presents the attitudes of parents to the childhood career choices.

TABLE 4.30

Parent's attitudes to childhood career choices

Attitudes of Parents	Girls		Boys		Total	
	N	%	N	%	N	%
Positive	35	80	31	72	66	76
Indulgent	1	2	2	5	3	3
Indifferent	1	2	4	9	5	6
Negative	7	16	5	12	12	14
No response	-	-	1	2	1	2
Total	44	100	43	100	87	100

Table 4.30 indicates that a majority of the children's choices (76%) received a positive response from parents, while few choices received a negative response (14%) or indifferent response (6%). The χ^2 test between the attributes sex of respondents and parental reaction to childhood career choices, led to the acceptance of the null hypothesis, that there is no relation between the two (χ^2 value 3.69, significance level 0.45, d.f=4). There is not much difference between the responses received by girls and by boys.

The crosstabulations of caste with parental awareness of childhood career choices was conducted. Table 4.31 presents this information.

TABLE 4.31

The caste of respondents and parental awareness of childhood career choice

Caste membership	Parents aware		Parents unaware		Total	
	No	%	No	%	No	%
SC/ST	33	47	38	54	71	101
Non-SC/ST	53	65	29	35	82	100
Total	86	56	67	44	153*	100

* Missing values excluded

The χ^2 test of the above crosstabulation had a value of 4.38, (d.f=1 and a significance level 0.04) and led to the rejection of the H_o, that there is no relation between caste membership and parental awareness of career choices. A Z test of proportions between the percentages of SC/ST and Non-SC/ST students, whose parents are aware of their children's career choice, was conducted. The Z value of 2.27 had a significance level of 0.05 (one-tailed probability) which led to the rejection of H_o, and the acceptance of H_1, that more Non-SC/ST students' parents are aware of their children's choices as compared to SC/ST students. Thus, it appears that Non-SC/ST students have greater interaction with their parents, which leads to increased parental awareness of career choices of the children.

With reference to parental attitudes to childhood career choices in the case of those parents who were aware of the choices, there was not much difference between the responses received by SC/ST and Non-SC/ST students (χ^2 value 7.44, d.f=4, significance level 0.11). This result was similar to the results by sex mentioned earlier.

4.7.8 Expectations of fulfilment of childhood career choice and anticipated problems

As many as 85% of the respondents revealed, that when they conceived of these choices, they felt totally confident of attaining them. Only eleven percent of the respondents were not too sure about achieving/fulfilling their aspirations, while for the remaining four percent of the sample, the question was not applicable (as they did not have childhood career choices).

Students were asked, whether they anticipated any problems in fulfilling their career aspirations. Sixty-nine students (39% of the sample) anticipated problems, while ninety-one students (57% of the sample) did not anticipate any major problems. For 4% of the sample the question was not applicable. Students who anticipated problems were asked to state the nature of problems anticipated by them. Table 4.32 presents the problems anticipated by the students.

TABLE 4.32

Problems anticipated in the fulfilment of childhood career choices

Problems	Number	%
Personal	7	11
Financial	33	52
Familial	4	6
Academic	15	24
Personal, Financial, Familial	1	2
Financial, Familial	1	2
Financial, Academic	1	2
Personal, Academic	1	2
Total	63	101

Table 4.32 reveals that students do anticipate financial constraints on their childhood career choices. As many as (52%) of those who anticipated problems, stated finance as a major factor. Finance was mentioned in combination with other factors by 58% of those who stated problems.

4.7.9 Summary

The childhood career choices were towards the higher end of the scale of occupations. It was seen that white collar occupations were preferred to blue collar ones. The correlation of sex and caste with CCC was significant (χ^2). However, academic performance and SES were not significantly related to the CCC. The reasons stated most often, for selecting a particular career was the family, followed by schools and financial need.

The awareness of the family members about the CCC indicated, that

family members knew the choices of girls and Non-SC/ST more often, as compared to the SC/ST students and boys. A majority of students were confident that they could achieve their chosen careers, while more than half of the students could not think of any problems that might hinder their achievement of the careers.

4.8 Present career choice

Career aspirations change over time for various reasons. According to Ginzberg's theory of career selection, changes in aspirations are inevitable since career choices are conceived and crystallised in a developmental process. The growing individual becomes progressively aware of the demands, requirements, and the relative status of various careers, and also of one's potentialities. This awareness is often modulated by norms and hierarchies set up by the society. The final adult aspiration is thus shaped by a variety of factors to which the growing individual is exposed.

The students were asked to state what their present career choice was, and whether it was the same or had changed, from their childhood career choice. Of the total sample, the six students (4%) who had not made any childhood career choices had now made their career decisions. While, 50% of the students (78/155) had changed their childhood career choice, 50% of the students had retained their childhood career choice (77/155). Fig 4.15 is a schematic representation of career choices at 2 stages.

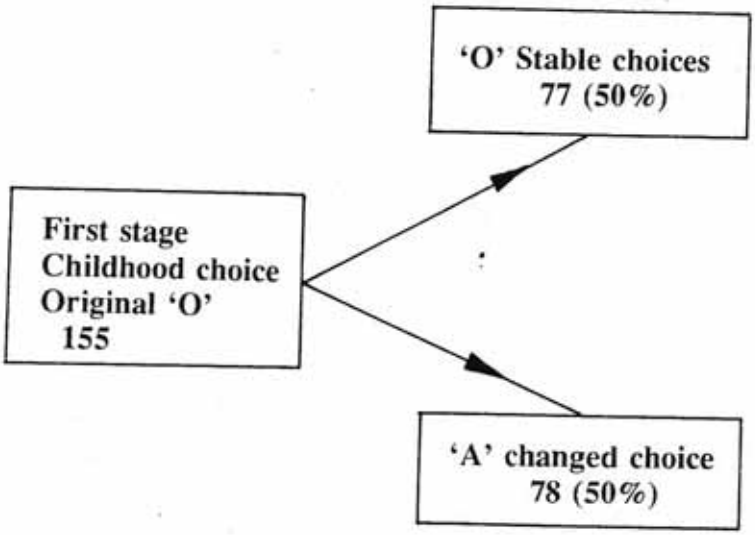

Fig. 4.15 Change and stability of childhood career choice in the present

4.8.1 Direction of change

The choices which had changed were studied in order to see the direction in which the change had occurred. The changed choices were compared to the original choices and the direction of change, in terms of the scale of occupations was noted. Basically three directions were categorised.

(i) A change to a higher level of occupation on the scale, as compared to the original was termed as 'Upwards Change'.

(ii) Changes on the same level of the scale, with reference to the original choice were termed 'Horizontal Change'.

(iii) Choices moving down the scale, with reference to the initial career choice were termed as 'Downward Changes'.

There was one category of unclear direction within changed choices, where either the changed or the original choice was a glamorous occupation, which could not be correctly placed on the scale and so its movement and direction could not be judged adequately.

The direction of the change was considered for the students who had changed their choice, that is, 78 students. Table 4.33 presents the directions of the changed choices.

TABLE 4.33

Direction of the change in choices

Direction of change	Number	%
Upwards	28	36
Horizontal	17	22
Downwards	27	35
Unclear	6	8
Total	78	101

Table 4.33 indicates that the percentages of upward changes (36%) is almost equal to the percentages of downward changes (35%), while the percentages of horizontal changes was (22%).

4.8.2 Influences that bring about change

Students were asked to enumerate, what/who had influenced them to change their choices. The various sources of influence, enumerated by the students are presented in Table 4.34.

TABLE 4.34

Sources of influence for change

Influences	Number	%
Family	36	44
Friends	7	9
Teachers	1	1
Neighbours	2	4
Experience	8	10
Self Decision	8	10
Financial	9	11
Academic	2	2
Mass media	3	4
No one	6	6
Total	81*	99

* Some students gave more than one choice

Table 4.34 indicates, that familial reasons for changing the choice (44%) were stated more often than any other reason. The next highest, that is, financial reasons were stated by only 11% of the students. The difference between these two figures 44% and 11% is statistically significant (Z test value 5.15, one-tailed significance 0.01). It is interesting to note that the current choices seem to depend more on familial influences and less on financial considerations.

What is the implication of the above finding? The importance of familial influences for changing career choices well above financial considerations, highlights the fact, **that awareness in families about career opportunities is essential**, because it is one of the most significant influences on career choices.

4.8.3 The present career choices

The details of present career choices of students are presented in table 4.35.

TABLE 4.35

Present career choices of boys and girls

Present Career Choices	Boys		Girls		Total	
	N	%	N	%	N	%
Unskilled	1	1	-	-	1	1
Semi-skilled	2	2	5	8	7	4
Skilled	-	-	1	2	1	1
Agriculture/Self-Employed/Business	4	4	1	2	5	3
Clerical	5	5	5	8	10	6
Lower-order Profession	11	12	1	2	12	8
Higher-order Profession	49	52	43	64	92	57
Miscellaneous	10	11	8	12	18	11
Glamorous Profession	12	13	3	5	15	9
Total	94	100	67	103*	161	100

* Rounding up the percentages

Table 4.35 indicates that in the entire sample only one student had made a career choice of being an unskilled worker. The specific choice was that of being a peon. This choice was made by an SC/ST boy from an average SES family. A point which should be mentioned here is that the classification of SES into three categories, low, average and high, arrived at by using certain statistical procedures, has only local validity. A family classified in the high SES category in this study, could have lower income than the national average. In this particular case the boys' family was elevated to the 'average' SES despite their

very low income because both the parents were educated. (Father had SSC plus some more education while mother had primary education).

The boy who wished to be a peon; what could be the reasons for such a strange 'choice'? One of the reasons could be that this is not a choice at all but instead an adjustment to his financial situation. The parents are involved in farming, on their own land, however the income is low because there is not much output to sell. Thus, financial need is one of the compelling reasons for choosing/selecting such a career. Another reason for making such a choice could be that it is a locally available occupation, and while doing his job the individual can look after agriculture too. One other possible reason for making such a choice is that the post of a peon in a government office in a small village, could still have some status.

Semi-skilled occupations were selected by few boys (2%) and the occupation selected was that of 'Diekaam' or die-making which consists of making casts and moulds mainly for jewellery. Girls, on the other hand, chose semi-skilled occupations more often (8%) and the occupation selected was tailoring.

Skilled occupation was selected by only one girl, and the occupation was that of a trained kindergarten teacher. More boys (4%) than girls (2%) chose agricultural/business (self-employed) occupations, while more girls (8%) than boys (5%) chose clerical occupations. More boys chose lower-order professions (12%) as compared to girls (2%) while more girls chose higher-order

professions (64%) as compared to boys (52%). 'Glamorous professions' were chosen by fewer girls (5%) as compared to boys (13%). The χ^2 value of the attributes sex and present career choices was 11.99 with d.f=6 and a significance level of 0.06 (two-tailed probability). *Thus, the H_o that there is no relation between the attributes of sex and PCC was accepted.*

4.8.4 Present career choice contrasted with childhood career choice

Table 4.36 depicts the present and childhood career choices of girls and boys in the sample.

TABLE 4.36

Childhood career choices (CCC) and Present career choices (PCC) of students

	Boys				Girls				Total			
	CCC		PCC		CCC		PCC		CCC		PCC	
	N	%	N	%	N	%	N	%	N	%	N	%
Unskilled	-	-	1	1	-	-	-	-	-	-	1	1
Semi-skilled	2	2	2	2	1	2	5	8	3	2	7	4
Skilled	7	8	-	-	-	-	1	1	7	5	1	1
Self-employed	7	8	4	4	-	-	1	1	7	5	5	3
Clerical	-	-	5	5	2	3	5	8	2	1	10	6
Lower-order Professional	45	50	11	12	44	69	1	1	89	57	12	8
Higher-order Professional	23	25	49	52	11	17	43	64	34	22	92	57
Glamorous	2	2	12	13	1	2	3	5	3	2	15	9
Unclear	5	6	10	11	5	8	8	11	10	7	18	11
	91	101	94	100	64	101	67	101	155	101	161	100

Table 4.36 indicates that lower-order occupations decrease from CCC to PCC in the case of both boys (50% to 12%) and girls (69% to 1%), while higher-order professional choices increase from childhood stage to the present stage, in the case of both girls (17% to 64%) and boys (25% to 52%). With respect to both the sexes, glamorous choices also increased from the childhood stage to present stage, the increase being a little more pronounced for boys (2% to 13%) than for girls (2% to 5%).

Choices for skilled occupations reduced from 8% to nil, while choices for self-employed occupations reduced from 8% to 4% in the case of boys. Girls did not exhibit CCC for skilled jobs.

Thus, the entire sample, as well as boys and girls exhibit the same trend in changes in career choices. Choices for lower-order professional occupations decreased, while choices for higher-order professions, clerical and glamorous professions increased. Other occupations which decreased mainly among boys were skilled and self-employed occupation.

Table 4.36 indicates, that there is a shift from CCC to PCC of occupations in the lower-order professional category (89 to 12) and the higher-order professional category (34 to 92). In order to test the significance of these differences one-tailed Z tests were conducted. The Z value of 10.88 (significance level 0.01) led to the rejection of null hypothesis, that there was no change in lower-order professions from childhood choices to present choices, and led to the acceptance of the alternative hypothesis, that the lower-order professional choices

had reduced from childhood to present. The Z value of the other test 7.13 (significance level 0.01) led to the rejection of the null hypothesis, that there was no change in the higher-order professional categories from childhood to present and to the acceptance of the alternative hypothesis, that higher-order professional choices increased from childhood to present stage.

What is the meaning of the increase in higher-order professional choices? Conclusions with regard to this fact can be drawn, only after analysing further information such as, influences for change, knowledge of requirements of the chosen careers, future plans, parental reactions and similarity of parental desires to respondents choices.

4.8.5 Caste and present career choice

A crosstabulation of caste with the present career choices was done in order to learn if there was any relation between the two. The χ^2 value of 11.17 with d.f=6 had a significance level of 0.08 which led to the acceptance of H_o, *that the present career choices were not related to the caste of the respondents.*

4.8.6 Academic performance and present career choice

The crosstabulation of academic performance with the present career choice had a χ^2 value of 12.55 with d.f=12 and significance level of 0.40 (two-tailed probability). This low level of significance led to the acceptance of

the H_o that there is no relation between academic performance and career choices. Thus, PCC are not significantly related to academic performance. Table 4.37 presents this crosstabulation.

TABLE 4.37

Academic performance and present career choice (N =107)

Occupational scale	Academic performance			Total
	Low N %	Average N %	High N %	N %
Unskilled	1 *3*	- -	- -	1 1
Semi-skilled	2 *7*	2 *4*	- -	4 4
Skilled	1 *3*	- -	- -	1 *1*
Self-employed	2 *7*	2 *4*	- -	4 *4*
Clerical	1 *3*	*6* 12	2 *8*	9 *8*
Lower-order professional	3 *10*	7 13	*1* 4	11 *10*
Higher-order professional	20 *67*	35 *67*	22 *88*	77 *72*
Total	30 *100*	52 *100*	25 *100*	107 *100*

* Percentages are row percentages

Table 4.37 shows that career choices of students with high academic performance, are concentrated at the higher end of the occupational scale. However, the difference between low, average and high performers is not statistically significant.

4.8.7 SES and present career choices

The crosstabulation of present career choices with SES had a χ^2 value of 15.05 with d.f=12 and a significance of 0.24 (two-tailed). This led to the acceptance of H_o, that there is no relation between the SES status of the

respondents and their career choices. This finding is similar to the result of the crosstabulation of SES with childhood career choice, which was also unrelated to the SES.

4.8.8 Reasons for career changes

Students were asked how the present career choice was made and what were the reasons for the change. Sixty-four students stated how they had made their present career choices. Table 4.38 presents the reasons for the present career choices stated by students.

TABLE 4.38

Reasons for present career choice

Reasons stated by Respondents	Number	%
1. Attraction/Self-decision	22	34
2. To help society	4	6
3. Family suggested	20	31
4. Cannot achieve childhood choice < marks	4	6
5. Present career choice is > Interesting > Prestige > Money	4	6
6. Peers	2	3
7. Financial circumstances	4	6
8. Childhood career choice is childish	1	2
9. Settled Occupation	1	2
10.Business > Money	2	3
Total	64	99

The various reasons stated by the respondents for how their career decisions were made indicate that being attracted to a career was the most frequent reason stated (34%). While suggestions from the family was the next

frequent reason (31%). Other reasons were, an inability to achieve the childhood career choice (6%), the present career choice being more interesting, having more prestige and better income (16%), peers engaged in similar careers (3%), the present career choice being a more settled one (2%), and the childhood career choice being 'childish' (2%). A significant feature is that financial circumstances of the family was stated by only 6% of the sample. It is interesting to note, that attraction for a certain occupation or suggestion coming from the family are much more influential in shaping career choices than considerations based on financial constraints.

4.8.9 Ranking of childhood and present career choices

In order to learn how the students rated their career choices of the past and the present, students were asked to rank their childhood career choices and present career choices on a scale from 1 to 10, where one stood for the most prestigious and 10 for the least prestigious. This was later weighted differently with the most prestigious occupation having a scale value of ten and the least prestigious occupation a scale value of one. Fig.4.16 represents the ranking of childhood career choice and present career choice by the students.

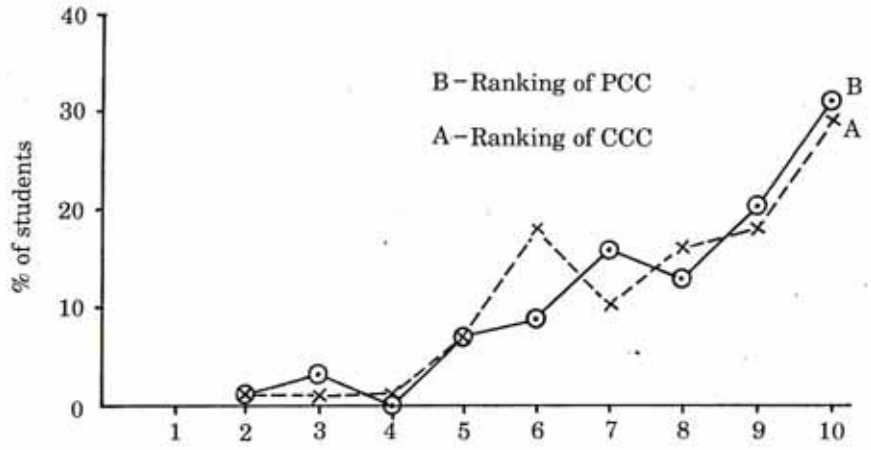

Fig. 4.16. Ranking of CCC and PCC on a ten point scale.

Though the two graphs appear similar, graph B (PCC) is higher than Graph A (CCC) beyond the scale rank of 5. Thus, present career choices are ranked higher than childhood career choices. Another procedure was also undertaken to see the differences in the childhood career choices (CCC) and present career choices (PCC).

For each student, ranking of childhood career choice (CCC) was subtracted from ranking of present career choice (PCC). This was done in order to study the discrepancy between the ranks of the two choices and to see whether this could be an indicator of why the childhood career choice was changed. Table 4.39 presents this discrepancy in ranking of childhood and present career choice.

Table 4.39

Discrepancy in ranking of CCC and PCC

Discrepancy between ranking of PCC and CCC (PCC-CCC)	Number		%	
-7.00	1		1	
-5.00	4		3	
-4.00	2	28	1	17
-3.00	5		3	
-2.00	7		4	
-1.00	9		6	
0.00	89		55	
1.00	16		10	
2.00	13		8	
3.00	2		1	
4.00	8	44	5	27
7.00	2		1	
8.00	1		1	
9.00	1		1	
10.00	1		1	
Total	161		101	

Table 4.39 indicates, that 55% of the students had no discrepancy in the ranking of present career choice and childhood career choice, while 17% of the students ranked their childhood career choice higher than the present career choice. This is the group in which the students changed their choice, perhaps because it is out of their reach. However, 27% of the students have rated the present career choice higher in terms of prestige etc. This one would expect in terms of a better choice being selected over the prior one. In order to understand better the ranking in the case of those students who have changed their choices, the discrepancy in the previous and present choice for only this group was

calculated. Table 4.40 presents this information.

TABLE 4.40

Discrepancy in the ranking of PCC and CCC by those students who changed their CCC

Discrepancy between the ranking of PCC & CCC	Number	%
-7	1	1
-5	4	5
-4	2	2
-3	4	5
-2	7	8
-1	9	11
Total	27	33
0	13	16
1	15	18
2	13	16
3	2	2
4	8	10
7	2	2
8	1	1
9	1	1
10	1	1
Total	43	52

Table 4.40 indicates that controlling for the group of students who did not change their choices results in a reduction in the zero discrepancy group from 55% to 16% in the two tables (Table 4.39 and Table 4.40). Higher preference for CCC in comparison to PCC increased from 17% to 33% and the opposite, that is, higher preference for PCC over CCC also increased from 27% to 52%. Thus, a larger percentage of students (52%) rank the PCC higher than the CCC as compared to those who rank the CCC higher than the PCC (33%).

4.8.10 Requirements of the career chosen

Students were asked if they were aware of the requirements of their chosen career. To this question, nine students (6%) did not respond. Eighteen students (11%) stated, that they knew nothing about the requirements of their chosen career. Forty-nine students (30%) stated, that they knew very little about the requirements of their chosen career. Seventy students (44%) knew enough about the requirements of their chosen careers while fifteen students (9%) knew all that was possible to know about the career. Thus, totally 53% of the students thought they had reasonable awareness of the requirements of the career, while 47% of the students had poor awareness of the requirements of the career.

Students were asked to state the sources of their information. Totally, 29 students or (18%) of the sample did not state any source in response to this question. The responses of the remaining students are presented in Table 4.41.

Table 4.41

Sources of information about the requirements of various careers chosen by students

Sources of Information	Number	%
D.Ed College nearby	8	5
Family	60	37
Assumed/Observed	7	4
Neighbours/Acquaintance	13	8
Media (Newspapers, TV)	6	4
School	17	10
Peers	16	10
Experience	7	4
No answer	29	18
Total	163*	100

* More than one response

Table 4.41 indicates that the largest source of information is the family (37%), followed by the school (10%), peers (10%) and neighbours (8%). Once again, the family turns out to be the major source of information for students. It is unfortunate that the school does not play a much larger role than the one seen here.

Students were asked to state their future plans with regard to their academic or career decisions. Their responses are presented in table 4.42.

TABLE 4.42

Future plans of the respondents

Future plans of the respondents	Number	%
To go to college	72	45
To do some vocational training	18	11
Job	5	3
Small Business	4	3
Marriage	3	2
College + Professional	50	31
College + Small Business	1	1
Agriculture	1	1
Not clear	2	1
Missing	5	3
Total	161	101

Going to college is the stated future plan of almost half the students (45%), and an intention of doing a professional course later was stated by (31%) of the students. Other future plans stated by the students were, getting vocational training, getting a job, marriage, doing a small business or agriculture.

4.8.11 Parental awareness of and reactions to the present career choices

Students were asked whether their parents were aware of their future plans. Almost 70% of the students stated, that their parents were aware of their plans, while 30% students stated that their parents were not aware. The crosstabulation of sex with parental awareness of present career choices had a χ^2 value of 1.58 (d.f=1 significance level 0.21) which led to the acceptance of H_o that there is no relation between the two. This is in contrast to the finding about CCC where parents were more aware of girls childhood career choice.

The students who stated that their parents were aware of their future plans, were asked to state the parental reactions to their career aspirations. Table 4.43 presents the parental reactions to present career choice and along with these the reactions to childhood career choice so that a comparison between reactions to CCC and PCC can be presented.

TABLE 4.43

The Parental reactions to present and Childhood career choice

Parental Reactions	CCC		PCC	
	N	%	N	%
Positive	66	76	101	90
Indifferent	5	6	2	2
Negative	12	14	6	5
No response	1	1	1	1
Mixed response	-	-	2	2
Indulgent	3	3	-	-
Total	87	100	112	100

Table 4.43 indicates, that more parents are aware of the PCC (112) than of the CCC (87). With respect to PCC, positive attitudes were received by ninety percent of the sample while in the case of CCC only 76% of the sample had received positive attitudes. Negative indulgent and indifferent responses had decreased with respect to the PCC. This indicates that parents start thinking about the career choices of children at a later stage, or that the change in the career choices may be more desirable. The crosstabulation of sex and caste with parental reactions tested by the χ^2 was not significant. (χ^2 value 3.60, d.f=4, significance level 0.46 and χ^2value 4.75, d.f=4, significance level 0.31).

4.8.12 Conclusion

The present career choices had changed from the childhood career choices, in favour of higher-order professions and the change was statistically significant. This change was statistically significant in the case of lower-order professions, which had reduced from childhood to present.

The crosstabulation of sex, caste, academic performance and SES were not significantly related to the present career choices. This is in contrast to childhood career choices which were significantly related to sex and caste of the respondents.

The most important reason for and the factor influencing, the present career choices was the family. Financial circumstances were stated by very few students as reasons for the present career choice. With respect to

awareness of the requirements of the chosen career, almost half the students (47%) had inadequate information. Again, the largest reported source of information about the requirements was the family. It can be stated that, at least with reference to provision of information, the school could have played a much larger role.

Regarding the parental awareness, more parents were aware of the PCC as compared to the CCC. The reaction of parents were, in general, positive.

4.9 Extent and nature of academic and vocational guidance provided by the family

In the above data, it was seen that the family was the biggest influence for making and changing career choices. It would, thus, be interesting to present here some data collected about the nature and extent of academic and vocational guidance provided by the family.

4.9.1 Perception of students about parental attitudes to occupations

Student were asked a few questions, in order to learn what their perceptions about their parents attitudes to occupations were. In this regard students were asked three questions. These questions were:

(1) What do your parents want you to do when you grow up?

(2) Can they support your future training/education?

(3) Do they expect you to contribute to the family income?

With reference to the first question, 41% of the students stated that their parents desires were the same as their own, while 6% of students said that their parents had left it to them to decide. Seven percent of the sample stated that they were unaware of their parents wishes, while 46% of the sample stated that one of their parent (or both) had desires different from their children. Thus, the percentage of parents who hold similar views as their child almost equals the percentage of parents, whose views differ from that of the child.

To the question about being able to support the child's future training and education, 85% of the students stated, that their parents would support their further education, while 12% stated, that their parents would not be able to support their decision in terms of financial requirements for education/training. Three percent of the sample found the question unapplicable to them and did not reply. Thus, a very large majority of students feel that their parents will financially support their future education. At the same time a large majority of students (85%) stated that their parents expected them to contribute to the family, and this was stated by 68% girls and 86% boys. The chi-square value of the variables sex and contribution to family income was 7.63 which was significant at the 0.02 level. This led to the rejection of the null hypothesis that there is no difference in the sex of students who are expected to contribute to the family income.

4.10 Summary of the chapter

The major findings of this chapter are:

1. That career choices do change with time.
2. Both childhood and present career choices were concentrated at the higher end of the scale, with most students choosing white collar, lower-order professionals.
3. It was found that finance was one factor which did not have a great deal of influence, either on the childhood and the present career choices, or even on the decisions to change choices.
4. Career decisions were more often made and changed as a result of familial suggestions than for any other reasons .
5. Sex and caste were significantly related to the occupational scale in childhood career choices, but the 'statistical means' of occupations selected by girls/boys, SC/ST, Non-SC/ST were not significantly different, either in childhood or at present.
6. SES and academic performance were not related to career choices.
7. Parents were found to be more aware of present career choices than of childhood career choices, while in the case of childhood career choices sex and caste were significantly related to parental awareness. The Z test of proportions indicated that in the case of childhood career choices parents of girls and Non-SC/ST students were more aware of the career choices of their wards than parents of boys and Non-SC/ST students.

8. The home background seen in terms of availability of reading material, students receiving academic help from family members and the educational level of the most educated individual in the family, suggested that it was not very conducive to literacy. This was, more so in the case of SC/ST students.

CHAPTER V

A FIELD EXPERIMENT

5.1 Introduction

This chapter reports on a small field experiment, wherein intervention in the form of vocational guidance was provided to students in their final year of schooling, and the efficacy of this intervention was studied.

In this part of the study, information was collected about the sources of vocational information and guidance available to students, such as, parents, relatives, teachers and the peer group. The role of these sources in providing vocational information and guidance to students was assessed.

5.2 Methodology

5.2.1 The sample

The sample of this study was restricted to girls studying in their final year in school, that is, the X^{th} standard. This year is crucial in terms of career aspirations as students have to make some career choice or future decisions, at this academic cut-off period. For a majority of students, the school leaving examination implies a termination of their academic careers. This situation is even more valid for girls and hence it was decided to restrict the sample to girls.

For this study, three schools from differing areas in Dahanu were selected. The areas selected were distinct from one another and furnish a sample of students from i) a semi-urban area ii) a semi-rural area and iii) a totally rural area. These areas have differing characteristics, such as, the *semi-urban area* is easily accessible by train and state transport buses. Besides, various occupations such as tailoring, teaching available in the area are agriculture, government jobs, beauty parlours and business. This area is within easy reach of a DAE (Department of Atomic Energy) residential township, which also makes business opportunities and a few jobs possible.

The main occupation of the *semi-rural* area is agriculture. This region is not directly accessible by train, however, the Dahanu railway station, being at a distance of fifteen minutes by a vehicle, makes various job and business opportunities possible, such as clerical, teaching, tailoring, nursing and other government jobs. The last area is *completely rural* and is different in the sense that fishing and its sale are the major occupations of the people. This region is the most backward of the three selected regions in terms of **a)** transport **b)** access to a nearby railway station and hence opportunities and, **c)** the level of literacy in the village and the social importance given to the education of boys and girls. The other occupations in this area are agriculture and die-making (the making of casts and moulds to be used by goldsmiths).

One hundred and fourteen students were interviewed for this study. The break-up by regions is presented in table 5.01.

Table 5.01

Number of students from each of the regions

School	Total
Semi-urban	48
Semi-rural	38
Rural	28
Total	114

5.2.2 The research design

The pre-post intervention research design with experimental and control groups was adopted. It was decided to have two control groups, so that the effects of merely being interviewed are not confounded with the effects of being exposed to intervention.

The experimental group (Ex.G) and the control group 1, ($C.G_1$) consisted of students who were in the final year of schooling during the academic year 1989-90. (They were to appear for their SSC examinations that year). The students from each region were placed in any of the two groups randomly. Thus, the two groups were considered to be equivalent though not matched on all possible variables.

Both, the control group 1 and the experimental group were interviewed at the pre-intervention stage, and later at the post-intervention stage. The experimental group was exposed to vocational information and guidance (which the control group 1 was not given) between these two stages of

interviewing. Details of the intervention are described later in this chapter in section 5.2.4. The other control group (termed $C.G_2$) was neither interviewed in the pre-intervention phase nor did it receive any intervention. The research design can be briefly represented as follows.

Ex.G:	**Pre-interview**	**Intervention**	**Post-interview**
$C.G_1$:	**Pre-interview**	_____	**Post-interview**
$C.G_2$:	_____	_____	**Post-interview**

The $C.G_2$ sample was different from the $C.G_1$ and the Ex.G sample in yet another way. This group consisted of girls who had appeared for their SSC exams prior to 1989-90, and thereby were *out of school*. These girls had already passed or failed in their exams and were either continuing their studies, repeating their exams, doing some job or something else. This group was a control for the $C.G_1$ girls. As the $C.G_1$ girls were interviewed about their career choices, and the process of undergoing an interview itself may help in clarifying one's decision about the careers one can undertake, it was decided to have a control for this factor too. The number of students in each of the three groups are approximately equal and are presented in table 5.02.

Table 5.02

Number of students in the experimental and control groups

Groups	Number
Experimental group	37
Control group 1	39
Control group 2	38
Total	114

5.2.3 The procedure

All the three groups of students were interviewed between mid-February and mid-March 1990. The questionnaire used as an interview schedule was the same in the case of the $C.G_1$ and the Ex.G (Appendix I). This questionnaire was marginally modified in the case of $C.G_2$, who had already appeared for the SSC exams prior to these two groups (Appendix J). All the interviews were conducted by the author, in the school premises and were around thirty minutes in duration.

The experimental group was provided with vocational information with reference to feasible career opportunities.

Post-interviews were conducted in September 1990. The same questions were asked to both $C.G_1$ and Ex.G (Appendix K). These interviews were conducted by the researcher and a colleague (Shri R.M. Bhagwat). In these interviews, information about the present activities of the students in terms of

education or work were collected so that a comparison between the two groups would be possible.

5.2.4 Details of the intervention

In each of the three schools, approximately, twelve students formed the experimental groups. After the career choices of these groups known, the students were met again after a month. Information about the various institutes or colleges in Dahanu, Bombay or neighbouring talukas such as Palghar and Vasai, where they could seek admission was provided to the students. Lack of proper information was a major problem for many students. The number of years the various courses would require was told to students.

Besides providing information about the career choices made by the students, knowledge of other educational and work possibilities was furnished to students. Students were asked to consider non-conventional occupational options and occupations having higher prestige (for example, many girls were happy to do 'D.Ed', a diploma in education. The advantages of doing 'B.Ed' or a degree in education, were explained). The guidance provided to students was not a neutral, unbiased one. There definitely was a bias, in encouraging and motivating the students to opt for occupations which are considered to be out-of-reach or unconventional (e.g., one girl said very hesitatingly, that she would like to be a 'physical education' teacher, which for a girl in a rural area is an unconventional occupation. She was provided with complete information about institutes which

offer this course). The guidance encouraged students to plan for long-term objectives, rather than settling for short-term ones (e.g., D.Ed). The advice was always tempered by the realities of the situation of the girls, in terms of financial and familial background, gathered from the pre-interviews.

5.3 Analysis of results

5.3.1 Demographic data

The ages of the students interviewed in the $C.G_1$ and Ex.G, ranged between fourteen to eighteen, while the ages of the $C.G_2$ students, ranged from fifteen to twenty-six. The mean age of each of the first two groups was 15 (in-school students), while that of the second control group was 17 (out-of-school students).

The academic performance of the students in the three groups, in terms of passing the SSC exams at the first attempt, are presented in table 5.03.

Table 5.03

Academic performance of students in the experimental and control groups

Groups	% passing SSC at first attempt
Experimental group	59
Control group 1	46
Control group 2	47

The differences in the percentages passing SSC in the first attempt in the three groups were tested with the help of the Z test of proportions. Three separate Z tests had to be conducted to test the differences in percentages between the Ex.G and $C.G_1$, between Ex.G and $C.G_2$ and between $C.G_1$ and $C.G_2$. The Z values of the tests mentioned above respectively were, 1.15, 1.05 and 0.09, which were all not significant at the 0.05 level. This led to the acceptance of the H_o that there were no significant differences between the groups with respect to academic performance.

The socio-economic status (SES) of the students is another variable on which the students could differ. It was decided to assess the SES of the students in order to confirm that the three groups did not differ significantly with respect to this variable. As stated earlier, the SES was derived from the variables of *parental education, paternal occupation* and *income* of the family. Parental education (scores 0-5 for father's education and 0-5 for mother's education) and paternal occupation (scores 0-7) was measured in the same way as stated earlier. Maternal occupation (scored 0-7) was utilised in the calculation of SES in the case of two students (one student's father was dead while the other stated that her father was not working).

Family income was categorised into six groupings by dividing the total range of monthly incomes in such a manner that no group had too few students. The six categories of income were, 1 (<500), 2(501 -1000), 3(1001 - 1500), 4(1501 -2001), 5(2001-3000), 6(>3001).

The SES was calculated by adding the values of, father's education, mothers education, father's occupation and coded income. Theoretical the above classification could range from 1 to 30. However, in practice, it was found that the range was between 3 and 24. It was decided to divide this range into three groups which would indicate low, middle and high socio-economic status. The method utilised earlier for categorisation was followed. The sample was distributed into categories based on percentages of the sample falling in each category, that is, 25%, 50% and 25%, indicating the divisions of the normal curve statistically. The middle category is the largest, with the lower and higher categories being one fourth each, and are shown in the following table. Table 5.04 presents the categorisation of the sample on the basis of SES scores.

Table 5.04

Categorisation of the sample on the basis of SES scores

Category	Score ranges	% of the sample expected	Actual %
Low	3- 8	25	20
Average	9-12	50	55
High	13-18	25	25
Total	3-18	100	100

The score ranges were held constant as indicative of socio-economic status, even though the percentage of the sample falling into each of them was not exactly what had been selected earlier, that is, 20% instead of 25%, and 56% instead of 50% and 23% instead of the last quartile. This was done because the

scale consisted of integers and selecting the next integer on the scale would throw the selected percentages totally out of gear. The comparison of the three groups, experimental and control, with respect to SES is presented in table 5.05.

Table 5.05

Comparison of the experimental and control groups with respect to SES

Groups	Low SES	Average SES	High SES	Total
Experimental Group	6 (16)	23 (62)	8 (22)	37 (100)
Control Group 1	12 (31)	18 (46)	9 (23)	39 (100)
Control Group 2	5 (13)	22 (58)	11 (29)	38 (100)
Total	23 (20)	63 (55)	28 (25)	114 (100)

(figures in brackets are row percentages)

The χ^2 of the crosstabulation of groups with their SES, had a value of 4.80 (d.f=4, significance level 0.31), which led to the acceptance of the null H_o that there is no relation between the groups and SES. Thus, it was confirmed that the three groups do not differ significantly with respect to SES.

The crosstabulation of the three groups with the three regions was conducted in order to learn if the students in the different groups were concentrated differently in the three areas. This information is presented in table 5.06.

Table 5.06

Crosstabulation of students in the experimental and control groups with the different regions

Regions	Ex.G	CG_1	CG_2	Total
Rural	8 (22)	7 (18)	13 (34)	28 (25)
Semi-rural	18 (49)	18 (46)	12 (32)	48 (42)
Semi-urban	11 (30)	14 (36)	13 (34)	38 (33)
Total	37 (101)	39 (100)	38 (100)	114 (100)

(figures in brackets are column percentages)

The χ^2 of the crosstabulation between groups and region living in was 4.02 (d.f=4, significance level 0.40), which led to the acceptance of H_o that there is no relation between groups and the regions living in.

The demographic information about the three groups indicates that the three groups do not differ significantly from each other in terms of academic performance, SES and regions living in.

5.3.2 The vocational choices

The vocational aspirations could be collected only in the case of the experimental and control group 1, as these students had yet to finish their schooling. The range of choices from this group of 76 students was very poor, that is, only 12 differing occupations were elicited in all. This range is very small considering the size of the group. It is understandable that socio-economic

deprivation would lead to a narrow range of career choices. For example, in a similar work on socio-economically deprived children (Bombay), it was found that the range of occupational choices of the group was small (16 choices were gathered from a group of 35 students)[1]. However, even this number was greater than that evoked from the students in Dahanu. It is important to learn the career choices of the students, and where these choices fell on the scale of occupations. Table 5.07 presents this information.

Table 5.07

Career choices of students in experimental and control group 1 ranked on the scale of occupations

Scale of occupational ranking	Frequency	%
Undecided/Miscellaneous (any job,marriage)	7	9
Semi-skilled (e.g., sewing)	4	5
Clerical	6	8
Lower order professionals	54	71
Higher order professionals	5	7
Total	76	100

From table 5.07 it is clear that a majority of the students have chosen, lower order professional careers. This category refers to occupations like librarian, teacher and nurse which though professions, do not require prolonged higher education and training, necessary for higher order professions such as medical doctor, lawyer or scientist. It is disturbing to note that few students, only seven percent of the sample, have selected higher order professions. However, in

comparison to the occupations reportedly done by mothers of the students, the sample of girls have made higher choices. The occupations of the mothers are presented in Table 5.08.

Table 5.08

Occupations done by mothers of the sample students

Mother's occupation	Frequency	%
Housewife	36	47
Unskilled	4	5
Semi-skilled	1	1
Small scale proprietors	31	41
Lower order professionals	4	5
Total	76	99

The information in Table 5.08 indicates that few mothers of the sample students were involved even in lower order professions, and most of them were either housewives or were engaged in some small-scale business (which means selling some fruits, vegetables or fish in most cases). Thus, compared to their mothers, the students had made higher choices. One of the objectives of this study was to learn the reasons for the vocational choices of students. Table 5.09 presents the reasons given by students for their career choices.

Table 5.09

Reasons for the career choice (N=76)

Reasons for the choices	Frequency	%
Parents' desire	38	31
Self decision	56	46
Finance	16	14
Academic	3	2
In order to be independent	10	8
Total	123*	101

* Some students cited multiple reasons

The reasons most often cited by the students are 'self decision' and 'parental desire'. The reasons cited least often were academic reasons and the desire to be independent. Finance was stated as a reason in only 14% of the cases.

It would be interesting to focus on the fact that lower order professional careers such as teaching and nursing were chosen by 61% of the students and on the reasons for these choices. Possible reasons for majority of students reaching such decisions could be: Firstly, teaching and nursing are stereotyped as women's work [2]. Secondly, these occupations are perceived to be within the reach of students in terms of academic requirements and local availability. Thirdly, both these professions are termed 'noble' professions, that is, professions in which one does something good for the benefit of society.

These reasons could have made these choices appear more attractive in the eyes of the students.

5.3.3 The sources of vocational information/guidance

Students were asked questions about their sources of vocational information and guidance. Parents, the school and the family (other than parents) were suggested as sources of vocational information and guidance to the students, who, were asked to state what had been the role of these sources in providing guidance. The responses of students to questions about these three sources are presented in Table 5.10.

Table 5.10

Provision of vocational guidance by the parents, family and the school

Sources of guidance	Received guidance		Did not receive guidance		Received some guidance		No response		Total	
	No	%	No	%	No	%	No	%	No	%
School	49	43	59	52	6	5	-	-	114	100
Parents	86	75	24	21	4	4	-	-	114	100
Family	64	56	26	23	1	1	23	20	114	100

Table 5.10 indicates that parents were the main source of vocational guidance for students followed by other members of the family [3]. The school was last on this list, though around forty-three percent of the students stated that it had

provided them with vocational guidance. One-tailed Z tests of proportionality with regards to the different percentages reported by students for parents, school and family, were conducted in order to learn whether these three sources of vocational guidance differed significantly from each other.

With respect to percentage of parents and school providing guidance as reported by students, a Z value of 5.19 with 0.01 significance level was computed which led to the rejection of H_0 of no difference between the two sources and the acceptance of the H_1 that parents are stated more often as a source of vocational guidance as compared to the school.

A Z value of 3.08 (0.01 significance level) was computed between percentage of parents and the family reported as sources of vocational guidance, leading to the acceptance of the H_1 that parents are stated more often as a source of vocational guidance as compared to the family.

Between the family and the school as providers of guidance, a Z value of 1.98 with 0.05 significance level was computed which led to the acceptance of the H_1 that the family is stated more often as a source of vocational guidance as compared to the school. This indicates that the school is not playing as important a role in vocational guidance as the parents and the other family members.

With regards to sources of vocational information students were asked detailed questions about the opportunities to discuss career options with a)

their family b) **their friends** and c) **their school**(teachers).

Eighty-nine percent of the sample said that they had discussions about careers with their parents, 10% said that they never had any such discussions with their parents, while 1% (2 students) did not reply to this question. Students were asked to state when (at what age) such discussions had begun. Twenty-four percent of the sample did not respond to the questions and of those who did, 33% said that discussions began during their final year in school, that is, in grade X, 5% after SSC, 46% in middle school, that is, during VII to IX, and 15% in primary school. An attempt was made to learn how frequently such discussions took place, table 5.11 presents the responses of students to this question. Frequency, here refers to the number of times, discussions with regards to careers had ever taken place.

Table 5.11

Number of times career discussions ever took place with parents

Number of times career discussions ever took place	Number	%
11 to 5 times/very rarely	36	32
6 to 10 times/quite often	7	6
11 to 25 times/very often	40	35
Missing/no response	31	27
Total	114	100

Table 5.11 indicates that the percentage of students (35%) stating that they have had discussions about careers with their parents, 'very often' (11-25

times) is almost equivalent to the percentage of students (32%) stating that they have had such discussions with their parents 'very rarely' (1-5 times). The place where such discussions took place was obviously the home as stated by all the students who had answered this question.

With respect to such discussions with friends, totally 91% students stated that they discussed career options with their friends. Seven percent of the students stated that they never discussed their future plan with their friends, while 2% of the students did not answer this question. The percentage of students discussing career options with friends is slightly more than that stated in the context of discussion with parents. Such discussions started taking place in middle school and continued, that is, 5% of the students said that such discussions began in the VIIth, 21% in the VIIIth, 24% in IXth and 31% in the Xth. Nineteen percent of the students had not responded to this question. Thus, peer group discussions increased with increasing age and successive years in school. The number of times such discussions ever took place, is presented in Table 5.12.

Table 5.12

Number of times career discussions ever took place with friends.

Number of times career discussions ever took place	Number	%
1 to 5 times/very rarely	21	18
6 to 10 times/quite often	15	13
11 to 25 times/very often	63	55
Missing/no response	15	13
Total	114	99

Table 5.12 indicates that more than half the students (55%) state that they have had discussions about careers with their friends, very often (11-25 times). Thus, the peer group interaction of students in the matter of career decision making appears to be good. The places where such discussions occurred according to the school are the school, outside the school and at home or near the home.

With regards to the school, 61% of the sample said that their teachers had discussed careers with them, 37% of the students said that their teachers never discussed such issues with them and 2% of the students did not answer this question. Such discussions began in SSC according to 30% of the students, while according to 11% and 2% of the sample the discussions began in middle school and primary school respectively, the remaining 57% of the students did not respond to the question. The number of times such discussions with teachers ever took place, are presented in Table 5.13.

Table 5.13

Number of times career discussions ever took place with teachers

Number of times career discussions ever took place	Number	%
1 to 5 times/very rarely	25	22
6 to 10 times/quite often	13	11
11 to 25 times/very often	20	17
Missing/no response	56	49
Total	114	99

Table 5.13 indicates that nearly half the students (49%) have not answered this question, and the percentage of students stating that such discussions took place very rarely (22%) is greater than the percentages of students stating that such discussions took place quite often (11%) or very often (17%). With respect to 'place of interaction' the school was stated most often (82%) by those who responded to the question. However, other places such as, private tuition classes, (16), were also mentioned in combination with school. It is interesting to note that while all the three sources inquired into, that is, the peer group, the family and the teachers were found to have discussed career options with the sample students, the teachers were seen to have the least involvement in these discussions.

5.3.4 Effects of intervention

The effects of the intervention provided to the students could be seen in two major ways, that is, a qualitative feel, and a quantitative assessment of the change in career choices in the control and experimental group with reference to each other. The qualitative feel that the intervention was seen by students as beneficial arises from various observations. Firstly, the sample students showed an exceptional willingness to be interviewed, both in the pre and post stages of intervention, and came for the lecture on vocational guidance. This was in spite of the fact that the SSC examinations were drawing close and that they sometimes had to wait for long hours for their turn to be interviewed. Another observation was that some students brought along other girls from

different classes so that they may also benefit from the interviewing and the lecture. Some girls contacted the author on later visits or wrote to her to get more specific information.

The quantitative assessment of the intervention concentrated on the ranking of the choices on the occupational scale developed earlier and the changes in the choices over the two stages [4]. Table 5.14, depicts the changed career choices of the experimental and control group 1 along with the career choices of the control group 2, all three of which are collected after the SSC examination and are ranked on the occupational scale.

Table 5.14

Career choices of the experimental and control groups

Occupational ranking of career choices	Experimental group		Control group 1		Control group 2	
	No	%	No	%	No	%
Unavailable/ Miscellaneous	14	38	11	28	3	8
Semi-skilled	2	5 (9)	2	5(7)	-	-
Skilled	-	-	-	-	1	3(3)
Small Proprietors	-	-	-	-	1	3(3)
Clerical	2	5 (9)	-	-	8	21(23)
Lower order professions	17	46(74)	26	67(93)	20	53(57)
Higher order professions	2	5 (9)	-	-	5	13(14)
Total	37	99(101)	39	100(101)	38	101(100)

*percentages in brackets are calculated by deleting missing cases.

Table 5.14 indicates that while the three groups show similar trends in their career choices, there is a differential preference within similar choices, that

is, the three groups have all shown a greater preference for lower order professions but the experimental group and control group 1 have opted for this choice more than the control group 2. More important is the comparison between the experimental group and control group 1, with respect to change in the career choices after their examination results. Table 5.15 and fig 5.01 present the comparison of the two groups with respect to the change in their choices.

Table 5.15

The change or stability of career choices.

Change or Stability of choice.	Experimental group		Control group 1	
	No	**%**	**No**	**%**
Remained stable	9	24	16	41
Changed	13	35	13	33
Data not available	15	41	10	26
Total	37	100	39	100

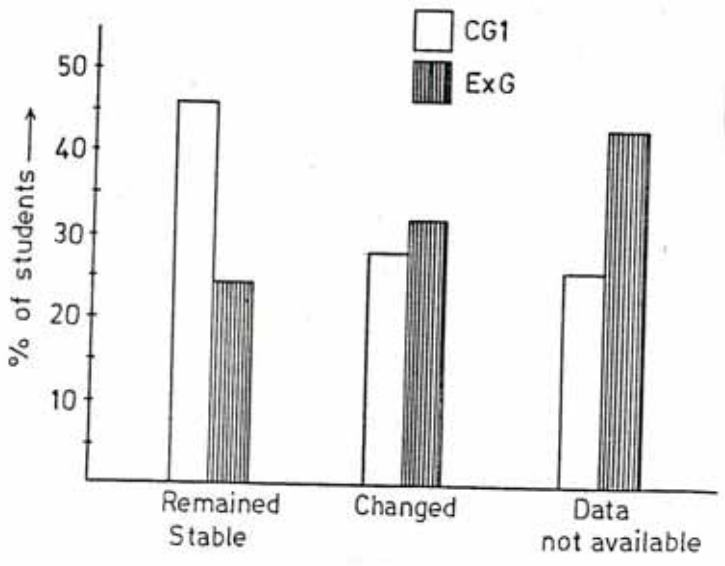

Fig. 5.01 The change or stability of career choices

The change in choices was approximately the same in both the groups. The direction of the changed choices was therefore considered in order to learn what kind of change had occurred. If the choice moved higher up the occupational scale. It was termed a change in the upwards direction, and if the choice moved lower on the occupational scale, it was termed a change in the downwards direction, a change on the same level of the occupational scale was included along with no change. Table 5.16 and fig 5.02, present the classification of the changed choices with respect to these terms.

Table 5.16

Direction of the changed choices

Direction of change	Experimental Group		Control group 1	
	No	%	No	%
Upward	8	62	3	23
Downward	5	38	10	77
Total	13	100	13	100

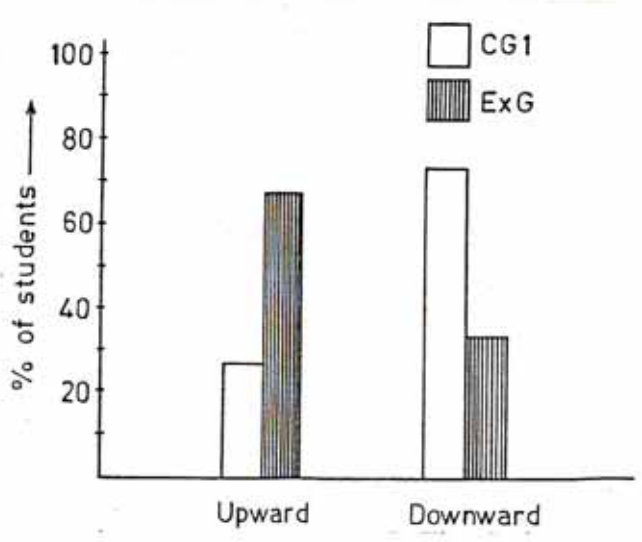

Fig. 5.02 Direction of change in the changed choices

Table 5.16 and fig 5.02 indicates that in the case of the experimental group there are more changes in the upwards direction (62% of all changes) as compared to the control group 1 (23% of the changes). The difference between the control and experimental group with respect to amount of change in the upward direction was tested by means of the ANOVA (one-way). In order to carry out the ANOVA, change in choices was graded on a three point scale, with no change represented by 0, change in the downwards direction by -1, and change in the upwards direction by +1. The mean of the experimental group was .30, while that of the control group was -.24. Table 5.17 presents the ANOVA results of direction of change as graded on the above scale in the experimental and control group 1.

Table 5.17

F values of change in choices of the experimental and control group I students

Source	d.f	Sum of squares	Mean squares	F ratio	F prob.
Between groups	1	3.8201	3.8201	7.8993	.0070
Within groups	50	24.1799	.4836		
Total	51	28.0000			

Table 5.17 indicates that the between groups variance with the experimental group of students having more changes of career choices in the upwards direction is statistically significant (F probability .007). This greater

change in the upwards direction in the experimental group as compared to the control group 1, could be seen as a result of the intervention provided to the experimental group, because the two groups were not significantly different on other variables e.g., academic performance and SES.

5.4 Conclusion

It is gratifying to note that the earlier existing notions with respect to girls' education and work, that women need not be educated and need not follow any career, and should be content to play the role of a housewife are fast disappearing. The difference between the careers of the sample students and those of their mothers showed that few students were content to be housewives, and most of them have chosen a career for themselves. The careers chosen also do not appear to be chosen thoughtlessly or at random, or inconsistent with realities. Instead it appears clear, that attainable and locally available careers have been selected thoughtfully by the students.

The study showed that the a majority of the students had selected teaching and nursing as their future careers. It is a pity, that students have not tried for careers which may not be so easily available, or those which do not fit so easily into the stereotype of women's work. Restricting the girls to a few categories of work, due to traditional social constraints or due to ignorance, without exploring newer work avenues is lamentable. Therefore, intervention studies in this field would be both desirable and productive.

It was clear that the school system was not playing an effective role in vocational guidance, or in discussing topics related to careers, as compared to other sources such as the family and the peer group.

The intervention was effective when seen both qualitatively and quantitatively. The positive response even to a 'limited' intervention, provided at such a late stage in academic life suggests that serious efforts by schools are needed to provide more vocational guidance to students.

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CHAPTER VI

SUMMARY AND CONCLUSIONS

The study aimed at learning more about generally neglected, social aspects of education. Occupational/career choice is one such aspect which is closely linked to education in general and need not be considered in the limited sense of vocational guidance. It has larger implications with reference to education and its functions. The career choices of students during their school life and at the end of it (SSC) were studied. Besides education, several other variables which affect career decisions were studied. These were:

a) Sex

b) Caste/tribal membership

c) Home background conducive to literacy

d) Socio-economic status

e) Academic background

f) Awareness of occupations

g) Sex-role stereotyping

h) Prestige of an occupation

An intervention study was also conducted with respect to provision of vocational guidance to girls studying in SSC. The area chosen for the study (Dahanu taluka) has a large concentration of tribal population. The problems of SC/ST students were given more attention. The main observations of the study were the following:

1. Dahanu taluka which has a tribal population of 66% from a total population of 2.5 lakhs, is economically and educationally backward. The student population of secondary schools (grades VIII to X) does not reflect the above population distribution. Of the 4,800 students, about 33% (and not 66%) belong to SC/ST.

2. Fewer girls than boys comprised the school going sample (34% of the total). Among SC/ST students this difference was even more striking (only 18% of the sample).

3. Students in the Dahanu region were able to list a sizeable number of occupations ($\bar{X}$=34). This is remarkable considering the fact that the students live in remote areas, and do not have easy access to sources of information like books and newspapers.

6.1 Factors affecting occupational selection

4. Girls and boys did not differ (in a statistically significant manner) with respect to the number of occupations known to them. However, there were statistically significant differences in the mean number of occupations listed by girls and boys within different categories of occupations. The category 'agriculture' had more number of occupations listed by boys while girls had listed more occupations for the categories, 'professional', 'skilled' and 'managerial'.

5. SC/ST and Non-SC/ST students did not differ (in a statistically significant manner) with respect to the number of occupations listed.

However, there were statistically significant differences in the mean number of occupations within categories listed by SC/ST and Non-SC/ST students. The six categories which were significantly different in the mean number of occupations stated were, 'agriculture', 'managerial' and 'glamorous' occupations (enumerated more often by SC/ST students) and 'business', 'skilled' and 'professional' occupations (enumerated more often by Non-SC/ST students).

6. Since the variables of sex and caste were mixed (more girls belonging to Non-SC/ST groups) a two-way ANOVA was conducted. Six categories of occupations, that is, business, managerial, skilled, professional and agricultural occupations had significant F main effects.. For all the six categories, caste was a significant variable explaining the number of occupations listed in that category, while sex was an explanatory variable in only three categories, namely, 'managerial', 'professional' and 'glamorous'.

7. Students with high, low and average academic performance did not differ (in a statistically significant manner) with reference to number of occupations listed, or number of occupations listed within different categories.

8. The differences in the ratings of girls and boys, regarding prestige of occupations were statistically significant for sixteen of fifty occupations. Of these sixteen, fourteen were rated higher by girls and two by boys. Girls appeared to rate more occupations higher. The

occupation rated higher were lawyer, porter, laundry-washer, sarpanch, hawker, cobbler, grocer, industrialist, potter, fishing, goldsmith, cooking, nurse, sculptor, while boys rated the occupations teacher and pilot higher.

9. The rank-order correlation coefficient (+0.89) between the ranking of occupations based on the mean ratings of occupations by boys and by girls, suggested that boys and girls ranked the occupations in a similar fashion.

10. The differences in the ratings of SC/ST and Non-SC/ST students, in terms of prestige of occupations was statistically significant for nineteen of the fifty occupations. Eighteen of these nineteen were rated higher by Non-SC/ST students, while the occupation of police-constable was rated higher by SC/ST students.

11. The rank-order correlation coefficient (+0.90) indicated that the ranking of occupations on the basis of mean ratings of occupations by SC/ST and by Non-SC/ST students was similar.

12. Teachers stereotype occupations as suitable/unsuitable for the sexes. They considered 47% of the occupations to be different in terms of suitability suited for boys and girls (the difference was statistically significant). Three occupations, nurse, domestic servant and teacher were judged more suitable for girls, by the teachers, while five occupations mechanic, merchant, pilot, agriculturist and industrialist were judged more suitable for boys.

13. The differences between stereotyping of occupations by male and female teachers was not significant. Thus, both male and female teachers hold the same stereotypes of occupational suitability for the sexes.

14. Students also stereotype occupations with reference to suitability for the sexes. They considered 94% of the occupations (16/17) to be different in terms of suitability for boys and girls (the difference was statistically significant). Of these sixteen occupations, two were seen as more suitable for girls than boys (nurse and domestic servant) while the remaining fourteen were seen as more suitable for boys.

15. The differences between stereotyping of occupations by girls and by boys was not significant. Both held the same stereotypes of occupational suitability.

16. The differences between stereotyping of occupations by SC/ST and by Non-SC/ST students was not significant. Thus, both groups held the same stereotype of occupations.

17. The difference between stereotyping of occupations by teachers and by students was significant, with students stereotyping many more occupations than teachers.

6.2 Demographic background

18. Mean family size of SC/ST and Non-SC/ST groups was not significantly different.

19. Fathers of SC/ST students had lower education as compared to fathers of Non-SC/ST students.

20. Mothers of SC/ST students had lower educational achievements as compared to mothers of Non-SC/ST students.

21. SC/ST had more uneducated siblings of or beyond the school-going age as compared to Non-SC/ST students.

22. Mean value of the occupations done by fathers of SC/ST students was significantly lower than the mean value of paternal occupation in the Non-SC/ST group.

23. SC/ST students' mothers had a lower occupational mean than Non-SC/ST students' mothers.

24. Fathers of SC/ST students were engaged in traditional occupations more often than fathers of Non-SC/ST students.

25. Non-SC/ST students had higher mean monthly familial incomes as compared to SC/ST groups.

26. SC/ST students were under-represented in the high SES category and over-represented in the low SES category. This situation is exactly opposite in the case of Non-SC/ST students who were over-represented in the high SES category and under-represented in the low SES category.

27. Of the students who held the status of being the most educated person in the family, 80% were SC/ST and 20% were Non-SC/ST.

28. More boys (70%) than girls (30%) were the most educated person in the family. Thus, in the existing situation of poor home-background for literacy, it is the boys who receive most opportunities for learning. This conclusion can also be derived from the fact that within SC/ST students there are more boys than girls.

29. More than half the sample (67%) reported that they never received any academic help from their parents.

30. Half the sample reported that they never received any help in academics outside the school, whether from parents, family members, or friends.

31. Seventy-four percent of the students reported that they had no access to newspapers, while 65% had not even one non-textual book available at their homes.

6.3 Occupational choices

32. Most of the children (96%) had made a career choice during their childhood. More than half the students stated that the age at which career choices were made was between six to ten years.

33. That career choices do change with time. The change was generally for choices higher than previous ones.

34. Both childhood and present career choices were concentrated at the higher end of the scale, with most students choosing white collar, lower-order professionals.

35. It was found that finance did not have a significant influence either on the childhood or the present career choices, or even on decisions to change choices.

36. Career decisions were more often made and changed as a result of familial influences, than for any other reasons.

37. Sex and caste were significantly related to the occupational scale in childhood career choices, but the mean occupations selected by girls/boys, SC/ST, Non-SC/ST were not significantly different, either in childhood or at present.

38. SES and academic performance were not related to career choices.

39. While parents were more aware of present career choice than of childhood career choice, the Z test of proportions indicated that in the case of childhood career choice, parents of girls and of Non-SC/ST students were more aware of the career choices of their wards than parents of boys and of SC/ST students.

40. The home background was not conducive to literacy especially in the case of SC/ST students. Home background for literacy was defined in terms of availability of reading materials, such as, newspapers, books magazines and books, as well as educational level of the most educated person in the family, and academic help received by the student from parents.

41. The intervention in the form of vocational guidance proved fruitful. More girls in the experimental group changed their choices in the upwards direction as compared to the control group.

42. The school system was found to be passive in terms of provision of vocational guidance.

6.4 Overview and recommendations

Many of the girls/boys in the sample expressed their interest during the interviews. Indeed one of the most striking observation was that often the researcher was quizzed about her reasons for conducting the interviews, about her academic and occupational background, as well as that of her parents and family members. One of the findings of the study was that interaction with others besides the immediate family, and sources of influences on career decisions indicated, that few students have contacts with persons outside of their immediate family and close friends. That is why perhaps, an opportunity to discuss future plans was seized by the students.

Although the study places emphasis on quantitative analysis, the presence of qualitative analysis, such as in-depth case studies which could not be accommodated in this limited study, would have added flavour to this topic. This study suggests the following recommendations:

a) Upgrading of educational facilities in the region, with greater emphasis on motivating the SC/ST students and especially girls to be enrolled in schools. There is a need to increase the

number of secondary schools and make facilities for higher learning available. At present, it is not possible to complete even graduation in Dahanu.

b) There is a need for provision of facilities for vocational guidance in the region, mainly through the school system.

c) Efforts have to be made to provide information about vocational and academic opportunities to the families by some media, such as, the mass media, or non-formal adult classes.

d) Teachers have to be made aware of their biases and their tendency to stereotype occupations for the sexes. The detrimental effects on the students, in terms of greater stereotyping of occupations by students, should also be brought to their notice. They should be informed that, all occupations are open to both the sexes, and there are no biological reasons for differentiating occupations for the sexes. Along with this, teachers should also be made aware that their role requires them to motivate students and especially girls, to aspire for challenging unconventional occupations.

e) There is scope for studying this problem in greater details. One possibility is studying the topic through qualitative research methods. Another possibility is to choose other factors affecting occupational choice and study how they affect career selection, or how they are viewed by girls, boys, SC/ST and

Non SC/ST. The findings of this study would be useful to research workers in the field of sociology of education, and for educational planning in terms of provision of vocational guidance to students of socio-economically backward section of society for career selection.

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होमी भाभा विज्ञान शिक्षण केंद्र

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72. - - - - - - - - - - - - - -
73. - - - - - - - - - - - - - -
74. - - - - - - - - - - - - - -

चुनावाला/मेमस्तकार

APPENDIX A (II)

Homi Bhabha Centre for Science Education

Vocational Awareness Proforma for Students (English)

Name:_____ Sex:_____

School:_____

Standard:_____ Age:_____

Religion:_____ Caste:_____

Father's Occupation:_____

Mother's Occupation:_____

% received in the last academic examination:_____

Please write down the names of all the occupation known to you in the spaces provided below:

1._____ 2._____

3._____ 4._____

5._____ 6._____

7._____ 8._____

9._____ 10._____

11._____ 12._____

13._____ 14._____

15._____ 16._____

17._____ 18._____

19._____ 20._____

21._____ 22._____

23._____ 24._____

25._____ 26._____

27._____ 28._____

29._____ 30._____

31._____ 32._____

33._____ 34._____

35._____ 36._____

37._____ 38._____

39._____ 40._____

41._____ 42._____

43._____ 44._____

45._____ 46._____

47._____ 48._____

49._____ 50._____

51._____ 52._____

53._____ 54._____

55._____ 56._____

57._____ 58._____

59._____ 60._____

61._____ 62._____

63._____ 64._____

65._____ 66._____

67._____ 68._____

69._____ 70._____

71._____ 72._____

73._____ 74._____

होमी भाभा विज्ञान शिक्षण केंद्र

विद्यार्थ्यांसाठी प्रश्नावली

नाव : -

शाळा : -

इयत्ता : - - - - - - - - - - - - - वय : - - - - - -

धर्म : - - - - - - - - - - - - - जात : - - - - - - - - मातृभाषा : - - - - - - - - -

वडिलांचा व्यवसाय : -

आईचा व्यवसाय : -

मागच्या वर्षी वार्षिक परीक्षेत मिळालेले गुण : -

खाली काही व्यवसायांची नावे दिलेली आहेत, आणि त्यांच्या बाजूला 5 स्तंभामध्ये तुमचे त्या व्यवसायाविषयी मत विचारलेले आहे. प्रत्येक व्यवसायासाठी तुम्हाला योग्य वाटेल अशा एकाच स्तंभामध्ये बरोबरची खूण करा. ज्या व्यवसायांबद्दल तुमचे ठाम मत नसेल, त्याच्या समोरचे स्तंभ रिकामे ठेवा.

व्यवसायाचे नाव	खूप चांगले	चांगले	ठीक आहे	चांगले नाही	अजिबात चांगले नाही
1) शेतकरी					
2) शिक्षक					
3) पोलीस इन्स्पेक्टर					
4) शिंपी					
5) इंजिनियर					
6) वाणी					
7) टॅक्सीचालक					
8) डॉक्टर					
9) सैनिक					
10) कलाकार					
11) मोलकरीण/घरगडी					
12) वकील					
13) मिलमजूर					

मागे पहा..

व्यवसायाचे नाव	खूप चांगले	चांगले	ठीक आहे	चांगले नाही	अजिबात चांगले नाही
14) कारकून					
15) मॅकॅनिक					
16) नर्स					
17) प्रोफेसर/प्राध्यापक					
18) उद्योजक					
19) वैमानिक					
20) चपरासी					
21) सेक्रेटरी					
22) खेळाडू					
23) हॉटेल मालक					
24) हमाल					
25) दुकानदार					
26) कुंभार					
27) सोनार					
28) वायरमन					
29) मॅनेजर					
30) स्वयंपाक करणे					
31) वैज्ञानिक					
32) बुरुड काम करणे					
33) वनस्पती/मध गोळा करणे					
34) चित्रकार					
35) लेखक					
36) हवालदार					
37) आमदार					

व्यवसायाचे नाव	खूप चांगले	चांगले	ठीक आहे	चांगले नाही	अजिबात चांगले नाही
38) चांभार					
39) न्यायाधीश					
40) सरपंच					
41) पोस्टमन					
42) ड्रायव्हर					
43) मासेमारी करणे					
44) मूर्तीकार					
45) वाडी काढणे					
46) धोबी					
47) फेरीवाला					
48) तलाठी					
49) भांडी/खेळणी बनवणे					
50) गवंडी					

APPENDIX B (II)

Homi Bhabha Centre for Science Education

Rating of Occupational Prestige by Students (English)

Name:_____ Sex:_____

School:_____

Standard:_____ Age:_____

Religion:_____ Caste:_____

Father's Occupation:_____

Mother's Occupation:_____

% received in the last academic examination:_____

Some occupations are listed below. In front of this list are 5 columns, in which your opinion about these occupations is asked. For each occupation, tick whichever column you think is applicable. If you do not have a firm opinion about some occupation please do not write anything in front of that occupation.

Name of the Occupation	Very Good	Good	Okay	Not Very Good	Not Good at all
1) Farmer					
2) Teacher					
3) Police Inspector					
4) Tailor					
5) Engineer					
6) Grocer					

Name of the Occupation	Very Good	Good	Okay	Not Very Good	Not Good at all
7) Taxi-Driver					
8) Doctor					
9) Soldeir					
10) Artist					
11) Domestic servant					
12) Lawyer					
13) Factory Worker					
14) Clerk					
15) Mechanic					
16) Nurse					
17) Professor					
18) Industrialist					
19) Pilot					
20) Peon					
21) Secretary					
22) Sportsperson					
23) Restaurant Owner					
24) Porter					
25) Shopkeeper					
26) Potter					
27) Goldsmith					
28) Wireman					
29) Manager					
30) Cooking					
31) Scientist					

Name of the Occupation	Very Good	Good	Okay	Not Very Good	Not Good at all
32) Basket Weaving					
33) Collecting Forest Products					
34) Painter					
35) Author					
36) Police Constable					
37) MLA					
38) Cobbler					
39) Judge					
40) Sarpanch					
41) Postman					
42) Driver					
43) Fishing					
44) Sculptor					
45) Horticulture					
46) Laundry Washer					
47) Hawker					
48) Talati					
49) Toymaker					
50) Mason					

Appendix C

Correlation measures the relationship between two variables and refers to the covariation of two or more variables. The rank-order correlation coefficient is used when assumptions about the parameters of the population cannot be made. Spearman's rank-order correlation coefficient is one non-parametric measure and is defined as

$$r_k = 1 - \frac{6\sum D^2}{N\ (N^2 - 1)} \quad OR \quad = 1 - \frac{6\sum D^2}{N^3 - N}$$

r_k denotes rank-order correlation coefficient

D refers to the difference of ranks

The value of the coefficient ranges between +1 and -1, where +1 indicates complete agreement in the order of ranking and the ranks are in the same direction. When r_k is -1, there is complete agreement in the order of ranking but the direction is the complete opposite. Rank correlation can be used:

a) when ranking is a primary process

b) when ranking is a secondary process

c) when there are ties in ranking, but with a correction. The correction is as follows:

$$r_k = 1 - \frac{6\sum D^2 + 1/12\ (m^3 - m) + 1/12\ (m^3 - m) \ldots .}{N^3 - N}$$

m in the above correction stands for the number of items whose ranks are common. If there are more than one such group of items with common rank, this value is added as many times as the number of such groups. Using this corrected formula and substituting the actual values for boys and girls ranking of occupations in the formula we get:

$$\left(1 - \frac{6 * 2343.5}{50^3 - 50}\right) + 1/12 * 9\ (2^3 - 2)$$

$$\left(1 - \frac{14071.8}{124950}\right) + 1/12 * 9\ (8 - 2)$$

$$\left(1 - \frac{14071.8}{124950}\right) + 1/12 * 9\ (6)$$

$$\left(1 - \frac{14071.8}{124950}\right) + 1/12 * 54$$

$$1 - \frac{14071.8 + 4.5}{124950}$$

$$1 - \frac{14076.3}{124950}$$

$$1 - 0.11$$

$$0.89$$

Appendix D

The values for the ranking of occupations by SC/ST and Non-SC/ST students are substituted in the rank order correlation coefficient formula below:

$$\left(1 - \frac{6 * 1979.5}{50^3 - 50}\right) + 1/12 * 9 * 2^3 - 2$$

$$\left(1 - \frac{10077}{124950}\right) + 1/12 * 9 \ (6 \ )$$

$$\left(1 - \frac{10077}{124950}\right) + 1/12 * 54$$

$$1 - \frac{10077 + 4.5}{124950}$$

$$1 - \frac{10081.5}{124950}$$

$$1 - 0.08$$

$$0.92$$

Appendix E

The sixteen occupations rated differently by girls and boys, where the difference in the rating is statistically significant were ranked separately. There were no ties and D^2 was 74.77. Using the formula to be used in case of no ties, i.e.,

$$1 - \frac{6 \times \sum D^2}{(N^3 - N)}$$

The working-out of the formula is as follows

$$1 - \frac{6 \times 74.77}{(16^3 - 16)}$$

$$1 - \frac{448.62}{(4080)}$$

$$1 - 0.11$$

$$0.89$$

Appendix F

The nineteen occupations which were stated differently by SC/ST and Non-SC/ST students, and where the difference was statistically significant were ranked again. There were no ties and the D^2 was 94. Substituting the values in the formula:

$$1 - \frac{6 \times \sum D^2}{19^3 - 19}$$

$$1 - \frac{564}{6840}$$

$$1 - 0.08$$

$$0.92$$

होमी भाभा विज्ञान शिक्षण केंद्र

शिक्षकांसाठी प्रश्नावली

प्रश्नावलीत काही व्यवसायाबद्दलची माहिती विचारलेली आहे. ही परीक्षा नसल्यामुळे कोणतेही उत्तर चूक किंवा बरोबर नाही. तुम्हाला सुचणारे पहिले उत्तर लगेच लिहा. तुमच्या सहकार्याकरिता आभार.

अ) खाली काही व्यवसायांची नावे दिलेली आहेत. ह्यापैकी जे व्यवसाय मुलांसाठी उपयुक्त नाहीत असे तुम्हाला वाटते त्यांच्यासमोर फुली (×) करा.

1)	शिक्षक	( )	10)	प्रोफेसर	( )
2)	कारकून	( )	11)	शेती	( )
3)	नर्स	( )	12)	मेकॅनिक	( )
4)	वकील	( )	13)	व्यापारी	( )
5)	पोलीस	( )	14)	इंजिनियर	( )
6)	डॉक्टर	( )	15)	वैमानिक	( )
7)	संशोधक	( )	16)	उद्योजक	( )
8)	कलाकार	( )	17)	मुख्याध्यापक	( )
9)	घरगडी/मोलकरीण	( )			

मागे पहा..

ब) खाली दिलेल्या व्यवसायांपैकी मुलींसाठी उपयुक्त नाहीत अशा व्यवसायांसमोर फुली (×) करा.

1)	शिक्षक	( )	10)	प्रोफेसर	( )
2)	कारकून	( )	11)	शेती	( )
3)	नर्स	( )	12)	मेकॅनिक	( )
4)	वकील	( )	13)	व्यापारी	( )
5)	पोलीस	( )	14)	इंजिनियर	( )
6)	डॉक्टर	( )	15)	वैमानिक	( )
7)	संशोधक	( )	16)	उद्योजक	( )
8)	कलाकार	( )	17)	मुख्याध्यापक	( )
9)	घरगडी/मोलकरीण	( )			

क) तुम्ही ज्या विद्यार्थ्यांना शिकविता, त्यातील मुले पुढे कोणते व्यवसाय करतात हे थोडक्यात लिहा.

ड) त्यांनी काय करायला हवे पण ते करत नाहीत याबद्दल थोडक्यात लिहा.

इ) तुमच्या विद्यार्थिनी पुढे कोणते व्यवसाय/काम करतात ते थोडक्यात लिहा.

फ) त्यांनी काय करायला हवे, पण करत नाहीत याबद्दल थोडक्यात लिहा.

APPENDIX G (II)

Homi Bhabha Centre for Science Education

Sex-role Stereotyping of Occupations by Teachers (English)

In this form, some information about various occupations is sought. This is not a test and hence no answer is correct or incorrect. Please write down whichever answer occurs to you immediately. Thank you for your co-operation.

---

1. Some occupations are listed below. Of these, please tick ( ) whichever occupation you feel is unsuitable for boys.

(1)	Teacher	[ ]	(10)	Professor	[ ]
(2)	Clerk	[ ]	(11)	Farmer	[ ]
(3)	Nurse	[ ]	(12)	Mechanic	[ ]
(4)	Lawyer	[ ]	(13)	Small Businessman/Trader	[ ]
(5)	Police	[ ]	(14)	Engineer	[ ]
(6)	Doctor	[ ]	(15)	Pilot	[ ]
(7)	Scientist	[ ]	(16)	Industrialist	[ ]
(8)	Artist	[ ]	(17)	Headmaster/Principal	[ ]
(9)	Domestic Servant	[ ]			

2. Of the occupations listed below please tick ( ) whichever occupation you feel is unsuitable for girls.

(1)	Teacher	[ ]	(10)	Professor	[ ]
(2)	Clerk	[ ]	(11)	Farmer	[ ]
(3)	Nurse	[ ]	(12)	Mechanic	[ ]
(4)	Lawyer	[ ]	(13)	Small Businessman/Trader	[ ]
(5)	Police	[ ]	(14)	Engineer	[ ]
(6)	Doctor	[ ]	(15)	Pilot	[ ]
(7)	Scientist	[ ]	(16)	Industrialist	[ ]
(8)	Artist	[ ]	(17)	Headmaster/Principal	[ ]
(9)	Domestic Servant	[ ]			

Sex of the person filling this form Male ( ) Female( )

होमी भाभा विज्ञान शिक्षण केंद्र

विद्यार्थ्यांसाठी प्रश्नावली

नाव : -

इयत्ता : - - - - - - - - - - - - - - - - - - वय : - - - - - - - -

धर्म : - - - - - - - - - - - - - - - - - - - जात : - - - - - - - - - - - - - - - -

वडिलांचा व्यवसाय : -

आईचा व्यवसाय : -

गेल्या वार्षिक परीक्षेत मिळालेले गुण (टक्के) : - - - - - - -

या प्रश्नावलीत काही व्यवसायाबद्दलची माहिती विचारलेली आहे. ही परीक्षा नसल्यामुळे कोणतेही उत्तर चूक किंवा बरोबर नाही. तुम्हाला सुचणारे पहिले उत्तर लगेच लिहा. तुमच्या सहकार्याकरिता आभार.

- -

अ. खाली काही व्यवसायांची नावे दिलेली आहेत. त्यापैकी जे व्यवसाय मुलांसाठी उपयुक्त नाहीत असे तुम्हाला वाटते त्यांच्यासमोर फुली (×) करा.

1)	शिक्षक	( )	10)	प्रोफेसर	( )
2)	कारकून	( )	11)	शेती	( )
3)	नर्स	( )	12)	मेकॅनिक	( )
4)	वकील	( )	13)	व्यापारी	( )
5)	पोलीस	( )	14)	इंजिनियर	( )
6)	डॉक्टर	( )	15)	वैमानिक	( )
7)	संशोधक	( )	16)	उद्योजक	( )
8)	कलाकार	( )	17)	मुख्याध्यापक	( )
9)	घरगडी/मोलकरीण	( )			

मागे पहा..

ब. खाली दिलेल्या व्यवसायांपैकी मुलींसाठी उपयुक्त नाहीत अशा व्यवसायांसमोर फुली (×) करा.

1) शिक्षक	( )	10) प्रोफेसर	( )
2) कारकून	( )	11) शेती	( )
3) नर्स	( )	12) मेकॅनिक	( )
4) वकील	( )	13) व्यापारी	( )
5) पोलीस	( )	14) इंजिनियर	( )
6) डॉक्टर	( )	15) वैमानिक	( )
7) संशोधक	( )	16) उद्योजक	( )
8) कलाकार	( )	17) मुख्याध्यापक	( )
9) घरगडी/मोलकरीण	( )		

चुनावाला/मेमस्तकार

APPENDIX H (II)

Homi Bhabha Centre for Science Education

Sex-role Stereotyping of Occupations by Students (English)

Name:_____ Sex:_____

School:_____

Standard:_____ Age:_____

Religion:_____ Caste:_____

Father's Occupation:_____

Mother's Occupation:_____

% received in the last academic examination:_____

In this form, some information about various occupations is sought. This is not a test and hence no answer is correct or incorrect. Please write down whichever answer occurs to you immediately. Thank you for your co-operation.

1. Some occupations are listed below. Of these, please tick ( ) whichever occupation you feel is unsuitable for boys.

(1)	Teacher	[ ]	(10)	Professor	[ ]
(2)	Clerk	[ ]	(11)	Farmer	[ ]
(3)	Nurse	[ ]	(12)	Mechanic	[ ]
(4)	Lawyer	[ ]	(13)	Small Businessman/Trader	[ ]
(5)	Police	[ ]	(14)	Engineer	[ ]
(6)	Doctor	[ ]	(15)	Pilot	[ ]
(7)	Scientist	[ ]	(16)	Industrialist	[ ]
(8)	Artist	[ ]	(17)	Headmaster/Principal	[ ]
(9)	Domestic Servant	[ ]			

2. Of the occupations listed below please tick ( ) whichever occupation you feel is unsuitable for girls.

(1)	Teacher	[ ]	(10)	Professor	[ ]
(2)	Clerk	[ ]	(11)	Farmer	[ ]
(3)	Nurse	[ ]	(12)	Mechanic	[ ]
(4)	Lawyer	[ ]	(13)	Small Businessman/Trader	[ ]
(5)	Police	[ ]	(14)	Engineer	[ ]
(6)	Doctor	[ ]	(15)	Pilot	[ ]
(7)	Scientist	[ ]	(16)	Industrialist	[ ]
(8)	Artist	[ ]	(17)	Headmaster/Principal	[ ]
(9)	Domestic Servant	[ ]			

APPENDIX I

Homi Bhabha Centre for Science Education

Interview Schedule: Control Group I and Experimental Group

1. Name:_____
2. Age:_____
3. School:_____
4. Do you think you will pass in SSC: Yes_____ No_____
5. Why do you think so:_____

   _____
6. What % do you think you will get:_____
7. If you pass/fail are you going to continue your education:

   Yes_____ No_____
8. Why?

   1. Financial Reasons_____
   2. Academic Reasons_____
   3. Parents Desire_____
   4. Self Desire_____
   5. _____

9. What do you want to do in life:

a) Study_____

b) Work_____

c) Marry_____

d) Stay at home_____

e)_____

10. Are there any reasons for your decision?

a) Financial_____

b) Academic_____

c) Parents Desire_____

d) Self Desire_____

e)_____

11. What do you think would be the most self-fulfilling thing/satisfying/that you can/should do:

_____

_____

Ideal:_____

12. Have you ever received vocational guidance from any source:

a) School

b) Parents

c) Family

d)_____

13. Do you ever have any discussions regarding careers, or the future with:

Friends: Yes_____ No_____

If yes, how often:_____

_____

Where,_____

How does the topic come up:_____

_____

Parents: Yes_____ No_____

If yes, how often:_____

Where,_____

How does the topic come up:_____

Teachers: Yes_____ No_____

If yes, how often:_____

_____

Where,_____

14. Father's education:_____

15. Father's occupation:_____

16. Mother's education:_____

17. Mother's occupation:_____

18. Any elder sister: Yes_____ No_____

19. If yes, her education:_____

20. If yes, her occupation:_____

21. Any elder brother: Yes_____ No_____

22. If yes, his education:_____

23. If yes, his occupation:_____

24. Family income(monthly):_____

25. Caste:_____

APPENDIX J

Homi Bhabha Centre for Science Education

Interview Schedule: Control Group II (Out of school girls)

1. Name:_____
2. Age:_____
3. School:_____
4. Have you passed the SSC exams: Yes_____ No_____
5. Which year did you appear for the exams:_____
6. If you failed in SSC, did you appear again: Yes_____ No_____
7. If you did appear again, did you clear the exams:

   Yes_____ No_____
8. What % did you get:_____
9. At present what are you doing?

   a) Studying:_____

   b) Working:_____

   c) Not studying: at home_____

   d) Married:_____

   e) _____

10. What are the reasons for what you are doing?

Why are you doing the above?

a) Financial necessity_____

b) Academic Reasons_____

c) Parents Desire_____

d) Self Desire_____

e) Any other_____

11. Did you want to do something else: Yes_____ No_____

If yes,_____

_____

12. What do you want to do in your life?

_____

_____

13. Who decided this:

1) Myself

2) Parents

3) Family

4)_____

14. What do you think would be the most self-fulfilling/satisfying thing that you can/should do:_____

Ideal:_____

15. Have you ever received any vocational guidance from any agency:

a) School YES_____, NO_____

b) Parents YES_____, NO_____

c) Family YES_____, NO_____

16. Do you ever have any discussions regarding careers or the future with:

Friends: Yes:_____ No_____

If yes, how often:_____

_____

Where,_____

How does the topic come up:_____

Parents: Yes_____ No_____

If yes, how often_____

Where,_____

How does the topic come up_____

_____

Teachers: Yes_____ No_____

If yes, how often:_____

_____

Where_____

17. Father's education:_____

18. Father's occupation:_____

19. Mother's education:_____

20. Mother's occupation:_____

21. Any elder sister: Yes_____ No_____

22. If yes, her education:_____

23. If yes, her occupation:_____

24. Any elder brother: Yes_____ No_____

25. If yes, his education:_____

26. If yes, his occupation:_____

27. Family income (monthly):_____

28. Caste:_____

APPENDIX K

Homi Bhabha Centre for Science Education

Interview Schedule Aimed At Learning The Career Choices Of Students

I STUDENTS BACKGROUND INFORMATION

1) Name:_____

2) Age:_____ 3) Sex:_____

4) Religion:_____ 5) Caste/Tribe:_____

6) Standard:_____ 7) % received in last exam_____

8) Have you ever failed in any class: 1) Yes_____

2) No_____

9) If yes, specify:

Standard	No. of times failed	Subjects failed in

II FAMILY BACKGROUND

1) How many members are there in your family?_____

Relation	Age	Education	Occupation	Other
1) Father (alive/dead)				
2) Mother (alive/dead)				
3) Sibling				
4)				
5)				
6)				

i) Father's Occupation: 1) TRADITIONAL
2) NON-TRADITIONAL

ii) If father is a labourer, how many months a year does he work:

_____

iii) If he is a farmer what does he do in the remaining months:

_____

2) Description of house:

a) No. of rooms:_____

b) Puccah/Katcha:_____

c) Size:_____

3) What is your total family income (monthly):_____

4) What are the sources of family income:
(property etc).

_____

_____

5) Is there any problem in the family:
(financial, physical, emotional, vices, health etc).

_____

III CHILDHOOD CAREER CHOICES

1) As a child, did you have any career aspiration, hopes, desires, as to what you would do, when you would grow up:

1) YES
2) NO

2) If yes, what were these aspirations?

_____

_____

_____

3) At what age did you make these decisions?

1) 1 to 5 yrs (K.G. to 1st standard).
2) 6 to 10 yrs (2nd to 5th standard).
3) 11 to 15 yrs (6th to 10th standard).

4) How had you made this choice:

_____

_____

5) Did you make this choice independently?

1) YES
2) NO

6) What/Who influenced you in making these choice?

_____

_____

7) Did your parents know your earlier choices:

1) YES
2) NO

8) What were their reactions to your earlier choices:

1) Positive
2) Indulgent
3) Indifferent
4) Negative
5) Family did not know
6) Others

9) Did you think you could achieve these:

1) YES
2) NO

10) Did you think of any problems that could prevent you from achieving your

goal? 1) YES
2) NO

If yes, which: 1) Personal_____
2) Financial_____
3) Familial_____
4) Others_____

IV PRESENT OCCUPATIONAL CHOICES

1) At present do you have the same aspirations or have they changed?

1) Changed
2) Not Changed

2) If changed, Why?

_____

_____

3) Who/What influenced you to change your career aspiration:

1) Peers
2) Family
3) Neighbours
5) Mass-Media
6) Financial Circumstances
7) Others

4) Age when new choice was made_____

5) What do you know about the requirements of this chosen career:

_____

_____

6) From where did you get this information:

_____

_____

7) What are your future plans in order to achieve your goal:

1) College education
2) Vocational education
3) Professional education
4) Job
5) Small business
6) Marriage
7) Other

8) Do your parents know about your choice: 1) YES
2) NO

9) What are their reactions to your choice:

1) Positive
2) Indulgent
3) Indifferent
4) Negative
5) Family did not know
6) Other

10) Place this career along with your childhood career choice on scale of occupational prestige/importance

CHILDHOOD:

Most Prestigious Neutral Least Prestigious

1 2 3 4 5 6 7 8 9 10

PRESENT:

Most Prestigious Neutral Least Prestigious

1 2 3 4 5 6 7 8 9 10

V PARENTAL ATTITUDES TO OCCUPATION AS PERCEIVED BY STUDENT

1) What do your parents want you to do when you grow up:

_____

_____

2) Can they support your future training /education?:

1) YES
2) NO

3) Do they expect you to contribute to the family income?

1) YES
2) NO

When:_____

4) What do you think about their decision?

_____

VI STUDENTS ATTITUDES TOWARDS SCHOOL/EDUCATION

1) Do you like your school: 1) YES
2) NO

2) Can you say why:

3) Do you take tuitions? From whom? For what subjects?

4) Do you want to study up to SSC? YES/NO

5) Do you think you will be able to do so: YES/NO

6) If not, why:

a) Financial reasons
b) Familial reasons
c) Others

7) If you do finish SSC what % do you think:

a) you will get:_____
b) you should get:_____

VII PARENTAL LITERACY/HOME ENVIRONMENT FOR LITERACY

1) In your house who has studied the most?

_____

2) How much?

_____

3) Do your parents help you in your studies? YES/NO

4) If yes, what do they help you with?

_____

5) If no, who helps you with your studies:

_____

6) Do your parents insist on your doing well in exams? YES/NO

7) Do they ever contact your schools/teachers to learn your academic progress: YES/NO

8) To what level do your family members expect you to study:

_____

9) Do you get newspapers at home: YES/NO

Which:_____

10) Do you have fiction/Non-fiction books at home? YES/NO

Approximately how many:_____

Is anybody a library member: YES/NO

@@@@@@@@@@@@@@@@@@@@