ISSN 0970 - 3500

Journal of Education and Social Change

July-Sept., Oct-Dec., 1993 Volume VII, No. 2 & 3

A STUDY OF STUDENTS' ATTITUDES TOWARDS SCHOOL SUBJECTS : A PRELIMINARY REPORT

Sugra Chunawala and H. C. Pradhan

[Attitudes play an important part in the achievement of students in school subjects. There are various studies in this context and they have established the positive correlation between attitudes and attainment. The present paper, is the preliminary report on the study of students' attitudes towards the school subject - mathematics and is based on the study of about 400 students from the Bombay schools.]

Introduction

The term 'attitude' is often confused with various others, such as, opinions, beliefs, values, perceptions and views.[1] These terms do have some similarity but are also different in subtle ways and a technical definition is often essential. While various definitions of the term attitude exist, an acceptable definition is provided by Fishbein and Ajzen (1975), "Attitude is a **learned predisposition** to respond **consistently** in a **favourable or unfavourable** manner towards an object"[2]. This definition suggests that the concept of attitude has an evaluative aspect which indicates (a) feelings (b) consistency (c) and learning. Learning is possible in many ways and social influence is an important feature in the process. Thus, attitudes are learned through social influence. Research in the area of attitudes as related to education, is often conducted with the aim of helping educators to help students understand the subject matter better.[3] The various areas covered in this field attempt to :

i. learn the attitudes of students and teachers towards various subjects, and changes in attitudes if any (positive, negative).

ii. learn the developmental stages at which the above occur.

iii. learn if there are any gender differences in attitudes.

iv. learn if there are any other differences such as rural- urban, gifted students-average students, etc.

v. learn if there is some correlation between the attitudes to a subject and performance in the subject.

vi. lastly, to bring about changes in the attitudes of students by the introduction of new information. However some such attempts fallaciously assume, that with appropriate instructional materials and teaching interventions, appropriate student attitudes can be guaranteed.[4]

With reference to mathematics one can justly state, that it plays an important role in facilitating or preventing entry into many occupations. It is now well known that an increasing number of students who are intellectually qualified decide not to study mathematics beyond high school and that this is more so among girls than boys.[5] Dropping mathematics early, results in fewer lucrative career options. Therefore, they study of attitudes towards mathematics and a study of gender differences with respect to these is important.

The perceptions of teachers about the attitudes of students towards school, and of differences between students by sex also require attention.[6] It would be helpful to know whether teachers are in touch with the students' attitudes and whether or not teachers perceive students of different sexes to have differing attitudes to school subjects.

The work reported in this paper is part of a larger project to study attitudes to mathematics. The present work owes greatly to the work of Kelkar et.al., who conducted a large scale survey (over 10,000 students) in 1975 with students studying VIII-XI (SSC).[7] In the present work at HBCSE, a somewhat similar methodology has been adopted but the concentration is on students studying in, what is known as the upper primary, or standards V-VII, which as a group has not been extensively studied.

Objectives

1. To learn the attitudes of upper primary students towards various school subjects.

2. To learn the reasons for liking or disliking subjects.

3. To learn the perceptions of teachers about the students' attitudes.

4. To learn gender differences if any in teacher perceptions.

Methodology

In order to learn students attitudes towards various school subjects a questionnaire was prepared which asked students to:

i. tick those subjects which they liked from a given list of subjects,

ii. state which subject/s they liked the most and the reasons for the same,

iii. state the subject/s they did not like and the reasons for dislike.

These three questions were attempts to gather information through different means so that they could corroborate each other. One other way of doing this was asking students to rate each subject on a five point scale with reference to four factors, i.e.,

1. *interest in a subject (like/dislike),*

2. *ease/difficulty of the subject,*

3. *usefulness of the subject, and*

4. *freedom of expression permitted by the subject,*

These four categories have been used by Kelkar and his group, and were found by Duckworth and Entwhistle as important while developing a repertory grid for assessing attitudes to school subjects,[8] and hence have been used here. The prepared scale was earlier pretested on Vth and VIth standard students to ensure that students studying at this level could understand the questions on the scale.

Teacher perceptions of the attitudes of upper primary students towards school subjects being an area of interests, teachers were asked to fill the same questionnaire given to students from the perspective of a typical seventh standard student. In order to see gender differences, if any, in teacher perceptions, some teachers were asked to fill the questionnaire as a typical male student would fill it (32), others, as a typical female student would fill the questionnaire (44), and still others, were asked to fill it irrespective of the sex of the student filling the questionnaire (36). The way the teachers filled the scale would indicate their perceptions of the students' attitudes towards the subjects and reveal teacher perceptions with regard to gender differences.

Sample

The questionnaire was administered to 411 students (224 male and 187 female) who were studying in the seventh standard in six schools of Bombay. The same questionnaire was also filled by 112 teachers (92 female, 20 male) belonging to twenty-two different schools. All the teachers taught at the upper primary or had done so at some time. Most teachers in this study were teaching mathematics (73) very few taught subjects other than maths (20) while the remaining had not given this information. Thus, any findings about teachers will be limited to mathematics teachers.

Analysis of the Data

The analysis of the data was primarily in terms of frequencies and correlations between the four categories mentioned above. This analysis was conducted for both students and teachers. Male-female differences among students and teachers were studied. Besides, differences in the teachers' perceptions of male, female, and students' attitudes irrespective of sex, were also studied. Attempts were made to study differences between students and teachers.

1. Analysis of students' data

(a) Liking of subjects

The students were asked to tick those subjects from a list of subjects given to them that they liked. Thus, students had two options for each of the subjects on the list, like and dislike. The following table presents the students liking of various subjects.

Table 1

Subjects arranged according to liking of students

Subjects	*Percentage*
Marathi	93
Hindi	88
Science	82
Maths	79
English	76
Geography	68
History	67
Civics	67

All of the subjects were more liked than disliked, this indicates that there is the possibility of students giving socially desirable answers. The above table indicates that Marathi and Hindi were subjects liked most, followed by Science, Maths and English. The subjects liked least were Geography, History and Civics. An attempt was made to learn whether there were any differences between the sexes with regards to liking of subjects.

Table 2

Subjects liked by boys and girls

Subjects	*Boys*		*Girls*	
	%	*Rank*	*%*	*Rank*
Marathi	92	1	95	1
English	77	5	74	5
Hindi	86	2	91	2
Science	83	3	81	3
Maths	80	4	78	4
History	70	6.5	64	7
Civics	70	6.5	63	8
Geography	65	8	72	6

The above table indicates that the only subjects which differ in liking for the two sexes are History, Civics and Geography. In order to understand the extent of difference/similarity between the liking of subjects by boys and girls, Spearman's rank order correlation coefficient was applied to the above data. The correlation co-efficient was + 0.92 which is high and positive and suggests that there are no major differences between the liking of subjects expressed by girls and boys.

(b) Subject most liked by students

Students were asked to write down the name of their favourite subject and the reasons for it being so. Some students did write more than one subject and this was also taken into account. Table 3 presents this data in terms of the sex of the students.

The subjects which were the favourite of boys in the first three places were: English, Marathi and Mathematics. For girls, the first three subjects were all languages, Marathi, Hindi and English. The subject liked least by both boys and girls was geography. The rank order correlation coefficient between girls

Table 3

Most liked subjects according to boys and girls

Subjects	*Boys*		*Girls*	
	%	*Rank*	*%*	*Rank*
Marathi	42	2	45	1
English	53	1	35	3
Hindi	16	6	36	2
Science	25	4	31	4
Maths	28	3	25	5
History	18	5	10	7
Civics	13	7	11	6
Geography	65	8	72	8

and boys was + 0.64 indicating that there is agreement between the sexes with regards to the favourite subject. Mathematics was stated by many students (28% of boys and 25% of girls) as being their most favoured subject, this indicates that there is no major sex difference in liking of mathematics among students.

The reasons stated by students as to why a particular subject appealed to them are presented below (the percentages do not add up to a hundred because there are various subjects and multiple reasons for liking them. Reasons stated by less than ten per cent of the students are not reported):

1. *the subject is easy to understand* (30% of students)
2. *teachers teach well* (24% of students)
3. *I love literature, reading, stories, words* (22% of students)
4. *get new knowledge* (15% of students)
5. *can answer well in exams* (13% of students)
6. *I just like it* (13% of students)
7. *does not require learning by heart* (10% of all students)

It is seen that easiness of the subjects and the way a teacher teaches, plays an important part in students liking of a subject. Another reason for liking a subject lies in certain characteristics of the subject itself, such as provides new knowledge, does not require rote learning, contains stories etc.

(c) *Subject most disliked by students*

Though the above question of most favourite subject does give an indication of the least favourite subjects, students were asked to state these specifically and the reasons for their being the least favourite.

Table 4

Least liked subjects according to boys and girls

Subjects	Boys		Girls	
	%	Rank	%	Rank
Marathi	08	8	02	8
English	25	5	28	4
Hindi	15	7	07	7
Science	16	6	14	6
Maths	28	3	25	5
History	34	2	40	2
Civics	25	4	49	1
Geography	50	1	34	3

The subjects which were the least favourite of boys were : Geography, History and Mathematics. For girls, the least liked subjects were social studies, that is, Civics, History and Geography. The rank order correlation coefficient between girls and boys was + 0.79 indicating that there is agreement between the sexes with regards to the least liked subject. With reference to mathematics interestingly the percentages of students stating it to be their least favoured subject matches exactly the number of students stating it to be their most favoured subject!

The reasons stated for disliking a subject are as follows. (the percentages do not add up to 100 as there are multiple subjects and multiple reasons, reasons stated by less than ten per cent of students are not reported).

1. *difficult* (30% of students)
2. *difficult to learn by heart* (26% of students)
3. *cannot understand the subject* (20% of students)
4. *do not get good marks in exams* (12% of students)
5. *big answers/figures* (11% of students)
6. *not a useful subject* (10% of students)

7. *only numbers* (10% of students)

8. *it requires more than learning by heart* (10% of students)

Difficulty with the subject was stated as one of the main reasons for disliking subjects. Poor teaching as well as certain characteristics of the subject such as its containing figures or too many numbers contributed to the dislike of subjects. Each of these reasons had its counterparts among the reasons stated for liking a subject, except in the case where a different reason was suggested for disliking a subject; this was the perceived uselessness of the subject.

2. Analysis of the categories

(a) Correlation between categories

With respect to the four categories, *liking, easiness, usefulness, and new ideas generated by the subject,* students had to rate each subject on a five point scale. The mean rating by all the students for each of the subjects was used to rank the subjects on each of these categories. Spearman's rank order correlation co-efficients were conducted to learn the correlations between these categories and are presented in Table 5. The reason for undertaking this analysis is to learn whether and how these categories are correlated to each other.

Table 5

Spearman's correlation co-efficients between the categories for all students

Categories	*Students*
Like and Easy	0.96
Like and New Ideas	0.92
Like and Useful	0.49
Easy and New Ideas	0.90
Easy and Useful	0.45
New Ideas and Useful	0.55

The above table indicates that students liking of subjects, feeling that a subject is easy or not, and the new ideas generated by a subject, were highly correlated with each other. Thus, three of the categories were closely correlated, that is, a subject which is liked is perceived as being easy and generating new ideas while a subject which is disliked is seen as difficult and not generating any new ideas at all. 'Usefulness of a subject' on the other hand was moderately correlated to the other three categories. This may indicate that the

students view the usefulness of a subject independent of the other three categories.

(b) Correlation between girls and boys with respect to categories

A correlation coefficient between boys and girls conducted for the ranking of various school subjects on the above categories, showed that there is a high positive correlation between the attitudes of girls and boys. In other words girls and boys studying in the seventh standard viewed various subjects in a similar fashion.

Table 6

Rank-order correlation coefficient between boys and girls

Categories	*Between boys and girls*
Liking of various subjects	0.92
Most Liked	0.64
Most disliked	0.79
Liking for a subject on a five point scale	0.95
Easy	0.93
New Ideas	0.93
Useful	0.90

All the sex wise analysis carried out upto this point has consistently shown that the views of boys and girls are in agreement. This is very significant in view of the fact that the attitudes of girls and boys towards various subjects changes at a later stage in schooling. That girls and boys change their attitude to various academic subjects and prefer different ones at later stages is widely reported. This difference is also seen in the occupational and career choices of students.[7] Various social factors could be behind this change in attitudes, such as, sex-role stereotyping at home, school, workplace and the mass-media. Thus, it would be important to study the perception of science and mathematics at higher standards too, as these are areas in which one finds less girls than boys.

3. Analysis of teachers' data

(a) Teachers' view of students liking of subjects

The teachers were asked to fill the form in a way that a typical student would fill it. The purpose of doing so was to learn to what extent teachers are able to assess the attitude of students to various subjects.

Table 7

Subjects arranged according to liking of students as suggested by teachers

Subjects	*Students*		*Teachers*	
	%	*Rank*	*%*	*Rank*
Marathi	93	1	92	1
Hindi	88	2	79*	3
Science	82	3	87*	2
Maths	79	4	69	4
English	76	5	59	5
Geography	68	6	57*	7
History	67	7	55*	6
Civics	67	8	56	8

* The asterisks indicate subjects which are holding a different rank given by teachers as compared to students' ranking.

The above table indicates that there was no difference in the teachers perceptions and students' attitudes with respect to Mathematics, Marathi, English and Civics. The differences were with respect to Geography and History, and Science and Hindi, where the positions were exchanged. The rank order correlation coefficient between students and teachers ranking of subjects liked was + 0.95 suggesting that teachers were quite conversant with students' attitudes to various subjects. With respect to 'most favoured subjects' the correlation between students and teachers was + 0.74, and with regards to most disliked subject it was + 0.64. The teachers and students were also in agreement about the various categories for the subjects. This data is presented in Table 8.

Table 8

Rank-order correlation coefficient between the various categories for students and teachers

Categories	*Between students and teachers*
Liking among all subjects	0.95
Most Liked	0.74
Most disliked	0.67
Liking of a subject on a five point scale	0.93
Easy	0.76
New Ideas	0.98
Useful	0.57

(b) *Categories of the questionnaire and correlations for teachers*

The four categories and their correlations for the various subjects were calculated for the teachers' data also. Table 9 presents this data.

Table 9

Spearman's correlation co-efficients between the categories for all teachers

Categories	*Teachers*
Like and Easy	0.74
Like and New Ideas	0.98
Like and Useful	0.93
Easy and New Ideas	0.69
Easy and Useful	0.62
New Ideas and Useful	0.98

With respect to the categories, there was a high correlation between the four categories for all the teachers. Only easiness of a subject was less well correlated to the other three categories liking, usefulness and freedom/new ideas. Interestingly, the correlation between new ideas and usefulness is the highest among teachers. Thus, we see a difference between students and teachers, that is students considered the usefulness of a subject to be an independent category while teachers consider easiness of a subject to be a relatively independent category.

(c) *Correlation between male and female teachers*

Attempts were made to learn if there were any differences in the views of male and female teachers, but it was found that teachers of both sexes were generally in agreement with each other. Table 10, presents the correlations for male and female teachers for all the categories.

Table 10

Rank-order correlation coefficient between the various categories for male and female teachers

Categories	*Between male and female teachers*
Liking among all subjects	0.68
Most Liked	0.90
Most disliked	0.91
Liking for a subject on a five point scale	0.90
Easy	0.67
New Ideas	0.93
Useful	0.83

Various correlations for male and female teachers ranged between (+ 0.67 to + .0 91) Thus, male and female teachers are in agreement about the way students would fill these forms. Correlations were also calculaged for the forms filled by teachers for a typical boy, girl and irrespective of sex. All these were high and positive, (+ 0.45 to 0.95).

Conclusions

This is a preliminary report of a study, which is in progress. The findings of this paper are:

(a) There are no gender differences in upper primary students' attitudes to various school subjects.

(b) Teachers are aware of students' attitudes towards various subjects.

(c) There are no gender differences among teachers, that is, both male and female teachers had similar perceptions about students. Besides, teachers viewed male and female students as having no differences in attitudes to subjects.

These findings point towards an important aspect, that is, why are there changes in attitudes at higher levels of education? Can the teachers themselves with their knowledge of students' attitudes be acting as an influence which shapes students' attitudes? These questions require greater and in-depth work with teachers and students at different levels of schooling. Such work has been planned as a part of this study.

*** Any suggestions and comments regarding the above work are welcome. Any correspondence may be addressed to the first author.***

Acknowledgements

The authors are grateful to Shri V. W. Jadhav for his extensive help in planning and executing this project. Thanks are also due to Ms. Sneha Narvekar and Ms. Aneeta Kharat for their help in data collection and computer entry. Thanks are also due to Ms. Savita Ladage for discussions at various stages.

References

1. Rastogi, S. (1991). *Mathematical Weakness*; Cause and Remedy. Mittal Publications, New Delhi, 112-113.

2. Shrigley, R. L., Koballa, T. R. (Jr) and Simpson, R. D. (1987). Defining attitude for science educators, *Journal of Research in Science Teaching*, 25(8), 659- 678.

3. Munby, H. (1990). Invited Commentary on Attitudes, *Science Education*, 74(3), 377-381.

4. Rastogi, S. (1991). *Mathematical Weakness; Cause and Remedy*. Mittal Publications, New Delhi, 112-113.

5. Fennema, E. and Sherman, J. A. (1976). Fennema-Sherman Mathematics attitudes scales: Instruments designed to measure the attitudes towards the learning of mathematics by females and males *JSAS Catalog of selected documents in psychology*, 6(31).

6. Darom, E. and Rich, Y. (1988). Sex differences in attitudes toward school : Student self reports and teacher perceptions. British Journal of Educational Psychology, 58, 350-355.

7. Kelkar, V., Tamboli, M. A. and Pore, S. K. (1973). *Students' attitudes towards school subjects with emphasis on mathematics* (in Marathi). Research publication no. 12, Maharashtra State Bureau of Textbook Production and Curriculum Research, Pune.

8. Duckworth, D. and Entwhistle, N. J. (1974). Attitudes to school subjects : a repertory grid technique. *British Journal of Educational Psychology*, 44, 76-83.

9. Kulkarni, V. G. and Chunawala, S. (1987). *The impact of science education in terms of role perception of socio-economically deprived first generation learners.* Technical Report 10, Homi Bhabha Centre for Science Education, (TIFR), Bombay.