Effect of Co-Education on Question Asking Behavior of Students – An Experimental Study

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Abstract

The experimental study was undertaken to study the Effects of Co-education on the Question Asking Behaviour of students especially on the onset of adolescence. The sample for the study were class 10th students of Govt. High School Kandoora (N=73) selected randomly from eight high schools in Zone Beerwah. Out of the 73 students, 36 were girls and 37 boys. Students were provided the opportunity to sit in both types of classroom settings viz. separate sex classrooms and co-educational classrooms, alternately. Direct observation was used as the method of data collection. The data for the present study was students' Frequency of asking questions in two different classroom environments viz. separate sex classrooms and co-educational classrooms. The statistical methods used to analyze the data gathered were Mean, Standard Deviation and 't'-test. The results of the study showed that there is a significant difference between students' Question Asking Behaviour in Separate Sex Classrooms and their Question Asking Behaviour in Co-educational Classroom. The study provides that there is a significant but inverse relation between the Co-educational classroom setting and the Question Asking Behaviour of students.

Key Words: *Separate Sex, Classroom, Coeducational Classroom, Question Asking Behaviour, Question generation, Students' Classroom Participation, Active Learning, and Passive Listening.*

Introduction:

Questioning, thinking and understanding; these three processes interact in a dynamic fashion to advance student learning, performance, and achievement. The traditional classroom regards learning as a process of student absorption of knowledge that has been pre-digested and imparted by the teacher. The new approach emphasizes the active participation of both the learner and the teacher. Education as a process of personality development and knowledge gaining should help an individual to develop the ability of reasoning and questioning. Students should be able to answer and ask questions. The school and classroom environment should be such that they feel free to participate in the

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classroom discussion and become active learners, not passive listeners. The school administration and teachers should be aware of the factors which hinder students' classroom participation and provide a suitable and congenial environment and help the students to overcome these factors.

Question generation is an important component of classroom participation and active learning, and above all, the lone path to creativity. Low levels of questioning and explanation on the part of students have been found to be correlated with lower achievement. Question generation is an important comprehension fostering (Palincsar & Brown, 1984) and self-regulatory cognitive strategy. The act of composing questions focuses the student's attention on content. It involves concentrating on the main ideas while checking to see if the content is understood (Palincsar & Brown, 1984). Scardamalia and Bereiter (1985) and Garcia and Pearson (1990) suggest that question generation is one component of teaching students to carry out higher-level cognitive functions for themselves. Questioning is an integral part of meaningful learning and scientific inquiry. The value of student-generated questions in learning has been emphasized by authors such as Biddulph, Symington, and Osborne (1986) and White and Gunstone (1992). Students' questions can serve different functions such as confirmation of an expectation, resolution of an unexpected puzzle, and filling a recognized knowledge gap (Biddulph and Osborne, 1982). Student questioning, particularly at higher cognitive levels, is also an essential aspect of problem-solving (Pizzini & Shepardson, 1991; Zoller, 1987).

The benefits of participation in the classroom have been researched quite extensively over the past years. Active classroom participation played an important role in the success of education and students' personal development in the future (Tatar, 2005). Students who are actively involved reported higher satisfaction and higher persistence rates (Astin, 1993). Proponents of separate sex instruction (SSI) and separate sex education (SSE) support grouping according to sex not only as a method for improving academic achievement but also as a means for offering girls an environment free of male domination. Some researchers have reported that girls are disadvantaged and inhibited in typical coeducational settings where boys control classroom culture (American Association of University Women, 1992; Blair & Sanford, 1999; Streitmatter, 1997, 1998; Thompson & Ungerleider, 2004). This boy-dominated classroom culture stifles girls' academic risk-taking (Parker & Rennie, 2002; Streitmatter, 1997, 1998) and inhibits their participation in asking and answering questions. For example, girls in coeducational settings have reported remaining reticent because of fear of embarrassment and lack of self-confidence (Orenstein, 1994; Thompson & Ungerleider, 2004). Marlene Hamilton (1985) studied students in Jamaica and found that students attending single-sex

schools outperformed students in coed schools in almost every subject tested. Hamilton also noted the same pattern of results which has been found in most studies worldwide: girls at single-sex schools attain the highest achievement; boys at single-sex schools are the next; boys at coed schools are the next; and girls at coed schools do the worst of all (p. 547). At Fairhurst High School in Essex, England, three years after changing to single-sex classes, the proportion of boys achieving high scores in standardized tests had risen by twenty-six percent, and the girls' scores had risen by twenty-two percent (O'Reilly, 2000). When Isidore Rabi, Nobel prize winner in physics, was asked what had helped him become a scientist, he was reported to have said:

Every other Jewish mother in Brooklyn would ask her child after school: 'so, what did you learn in school today?' However, not my mother. 'Izzy', she would say, 'did you ask a good question today? That difference - asking good questions - was what made him become a scientist, the Nobel laureate maintained.

Students do not necessarily say if they have problems or doubts, maybe because they are too shy to express themselves. Thus, many of their questions and puzzlements may go undetected and not be dealt with as the teacher may not be aware of them. Consequently, many potential conceptual talks could be untapped if these questions are not asked. Hence, it becomes important to know the factors which have a direct or indirect bearing on the question asking behavior of students. Research has highlighted many factors which influence students' question asking behavior. These factors are students' age, experience, prior knowledge and skills, the attitude of the teacher, teaching style, nature of the topics, reward structure, classroom evaluative climate, social interaction patterns, culture of the society, family background, presence or absence of opposite gender, nature of the student (shyness) etc. Adolescence is a period when students become more conscious and sensitive towards the opposite sex. Here the question arises, does the coeducational and separate-sex environments affect the classroom behavior of students, particularly their question asking behavior.

The shyness or nervousness of asking questions due to the presence of the opposite sex is a major factor which hinders students from asking questions and this becomes more prominent with the onset of adolescence. Against this backdrop, the present investigator wants to study the Question Asking Behaviour of students in the coeducational (boys + girls) setting and separate sex (boys or girls only) setting, as no such study has been conducted in Kashmir till date.

Statement of the Problem

"*Effects of Co-education on the Question Asking Behaviour of Students— An Experimental Study*."

OBJECTIVES OF THE STUDY

1. To study the question asking behavior of students.
2. To study the effects of separate sex and coeducational classroom setting on the question asking behavior of boys
3. To study the effects of separate sex and coeducational classroom setting on the question asking behavior of girls.

HYPOTHESES

1. Question asking behaviour of boys gets negatively affected in a coeducational setting.
2. Question asking the behaviour of girls gets negatively affected in a coeducational setting.

Operational Definition of Variables

- Separate-sex classroom: A classroom comprising of girls or boys only.
- Coeducation classroom: A classroom where both boys and girls are present.
- Question Asking Behaviour: The frequency of asking questions to the teacher in the classroom.

Methodology and Procedure:

Sample

For the present experimental study, the sample was chosen from Tehsil Beerwah of District Budgam. Out of the three educational zones of Tehsil Beerwah, Zone Beerwah was chosen for the present study. Out of eight High Schools in zone Beerwah, High School, Kandoora was randomly selected for the experiment. Students of class 10^{th} were taken as the sample for the present study. The final sample consisted of 73 students. Out of these 73 students, there were 37 boys and 36 girls. The sample was divided into two sections— section A [girls only (N=36)] and section B [boys only (N=37)]. These

sections were changed from same sex to coeducation and from coeducation to same sex alternately as per the requirements of the experiment. Lectures were provided both in separate sex and coeducational classroom settings. Data was gathered by directly observing the lectures in the classroom.

Thus, the sample subjects were grouped into three groups—boys only (N=37), girls only (N=36), and coeducation [N=73 (boys=37 + girls=36)].

Experiment

As mentioned above, the sample for the study were class 10th students who were divided into two sections, namely section-A and Section-B. Girls belonged to section A and boys to section B. From among the subjects taught and lectures conducted, the science class was chosen for the study as it is seen that students usually ask more questions in the science class. For the experiment, students— both boys and girls were provided the opportunity to sit in both types of classroom settings—separate sex as well as coeducational settings. Sixty-four lectures were observed in total. Out of these sixty-four lectures 32 were separate sex classes and 32 were arranged as coeducational classes.

Out of 32 separate sex lectures, 16 were conducted for boys and 16 for girls. Out of 16 separate sex lectures conducted for girls, eight were arranged in the morning and eight in the afternoon. Likewise, out of 16 same sex lectures for boys, eight were arranged in the morning and eight in the afternoon.

Out of the 32 coeducational lectures, 16 were named A+B (first 18 girls and last 19 boys—as per roll order in the original section) and 16 were named B+A (first 18 boys and last 18 girls—as per roll order in the original section). Out of the 16 A+B lectures, eight were conducted in the morning and eight in the afternoon. Likewise, out of 16 B+A lectures, eight were conducted in the morning and eight in the afternoon.

In this way, both a separate sex classroom setting and a coeducational classroom setting were arranged. The timing of the lectures for each section was changed for there might be any effect of freshness and tiredness on the frequency of asking questions. Sometimes students are tired and are not interested in asking questions. That is why all sections were taught in two different timings equally. This was to wipe out any effects of freshness and tiredness on question asking behavior.

Table 1. showing the procedure followed in the conduct of classes.

S. No.	Section	Nature of classroom	sex	No. of Students	No. of lectures delivered	Timing of the lecture	
						morning	Afternoon
1	A	Separate sex	F	36	16	8	8
2	B	Separate sex	M	37	16	8	8
3	A+B	Coeducation	F+M	37	16	8	8
4	B+A	Coeducation	M+F	36	16	8	8

The data for the present study was the frequency of asking questions in each lecture by each student. For the collection of data, the present investigator attended and observed each lecture and recorded the number of questions asked by each student during the lecture. Then at the end, the total number of questions asked by each student in the separate sex setting was compared with the total number of questions asked by him/her in coeducational setting. The total number of questions asked by girls in the separate sex setting was compared with the total number of questions asked by them in the coeducational setting and the same was done for the boys as well.

Statistical Analysis:

The present investigators, concerned with the study of the effects of co-education on the Question Asking Behaviour of students used Mean, Standard Deviation, and t-test for statistical analysis.

Table- 2: Significance of mean difference between the students put in the coeducational setting [boys + girls (N = 73)] and the students put in the separate sex setting [boys only (N = 37)] on Question Asking Behaviour in classroom.

Group	Mean	S.D. (б)	t-value
Coeducation	5	7.42	3.61*
Separate sex (boys only)	11	8.59	

*Significant at 0.01 level.

Table 3: significance of mean difference between students put in the coeducational settings [boys + girls (N = 73)] and students put in the separate sex settings [girls (N = 36)] on **Question** Asking Behaviour in classroom.

Group	Mean	S.D.	t-value
coeducation	5	7.42	3.45 *
Separate sex (girls only)	11	9.05	

*Significant at 0.01 level**.**

Interpretation and Discussion

A perusal of table 2. makes it clear that the mean score of students in the separate sex settings (boys only) is more than the mean score of students placed in the coeducational settings (boys + girls) on Question Asking Behaviour. The 't' value obtained is 3.61, which is significant at 0.01 level. It indicates that the coeducational classroom setting has a profoundly negative effect on the question asking behavior of boys.

A perusal of table 3. makes it clear that the mean score of students in the separate sex settings (girls only) is more than the mean score of students placed in the coeducational settings (boys + girls) on Question Asking Behaviour. The 't' value obtained is 3.45, which is significant at 0.01 level. It indicates that the coeducational classroom setting has a profoundly negative effect on the question asking behavior of girls.

The statistical analysis of the research data clearly depicts that there is a great difference between students' question asking behavior in the separate sex setting and coeducational settings. The analysis and interpretation of the data gathered shows that the question asking behavior of students is inversely related to the presence of the opposite sex in the classroom. The frequency of asking questions decreased when the students were put in a coeducational (boys + girls) setting (the mean was 5) and it increased tremendously when the students were put in a separate sex setting (the mean was 11). It was further observed during the study that the presence of the opposite sex in the classroom had a striking effect on some students who would otherwise be active learners talk much in the classroom and raise many questions during the lecture while in the separate sex settings. This was true for boys as well as girls. They remained completely silent in the coeducational setting. However, there were some students who were not affected by the change in classroom setting—separate sex or coeducation. However, their number was very low, negligible. Some of the students, both boys and girls, did not ask any questions in either of the two settings—separate sex and single sex. They felt shy even in the presence of their own respective sexes.

There are many reasons why students remain silent in the classroom and hesitate from active participation. Shyness is a general reason for this and shyness due to the presence of opposite sex is a prominent reason among others. However, the question arises why students feel shy in the presence of the opposite sex? The analysis of the data gathered makes it clear that students did shy away from asking questions while sitting in a coeducational setting. This is due to the fact that boys as well as girls could bear embarrassment to some extent if this is in boys only or girls only classroom, respectively. Boys don't like to raise a question or to be questioned or called on or asked to stand up in the presence of girls. They fear if anything would be wrong with their question or anything is asked and they don't know the answer, what will the girls think about them; it will be an embarrassing situation for them. Same is the case with girls as well.

Some other reasons which seem to affect question asking behavior are quality of the question itself, name calling, language weakness, etc. By quality of the question, it is meant if the question he/she is going to ask is worth asking or an ordinary one. A student fears if it happens to be an ordinary question, classmates will laugh at him/her. To avoid such a situation, he/she prefers confusion to clearance. Another monster is if he/she asks questions students will call him/her name like a question monger, and this is the case with girls as well as boys. If he/she asks question, the students will be thinking he/she is trying to be over smart. Yet the other reason is that a student is not able to speak up good English or Urdu, so he/she should not ask any question for other students that will tease him/her that he/she speaks in local dialect. This is true for boys as well as girls. A student fears if he/she asks a question, the teacher may get angry, teacher may think that he/she is trying to test his knowledge or he might have already answered this question during the previous lecture when he/she had not come to school, or teacher may think he/she is trying to be over smart before opposite sex.

The obtained results of the study are in line with the findings of the studies reported by Orenstein (1994) and O'Reilly (2000). Orenstein (1994) found that girls in coeducational settings have reported remaining reticent because of fear of embarrassment and lack of self-confidence. O'Reilly (2000) found that three years after changing to single-sex classes, the proportion of boys achieving high scores in standardized tests had risen by twenty-six percent, and the girls' scores had risen by twenty-two percent.

Therefore, the hypotheses:

1. Question asking the behaviour of boys gets negatively affected in a coeducational setting is accepted.
2. Question asking behaviour of girls gets negatively affected in a coeducational setting is also accepted.

CONCLUSION AND SUGGESTIONS

CONCLUSION:

1. There is a significant difference between the question asking behavior of students in the separate sex settings and the question asking behavior of students in the coeducational settings.
2. The difference between the question asking behavior of boys in the separate sex setting and their question asking behavior in the coeducational settings is quite significant.
3. The question asking behavior of boys was low when they were taught in a coeducational setting.
4. The difference between the question asking behavior of girls in the separate sex settings and their question asking behavior in coeducation is quite significant.
5. The question asking behavior of girls was low when they were taught in a coeducational setting.

SUGGESTIONS:

1. Single sex schools should be established on a large scale. Wherever there are coeducational schools, provision of single sex classrooms should be made possible.
2. Quality should not be the criterion for asking questions. Whatever comes in students' minds, they should be able to speak up and it is the duty of the teacher to encourage and strengthen such a behavior.
3. Language should not be a barrier in asking questions. Students should be encouraged to ask questions in any language or dialect they are comfortable with.
4. Teachers should not feel irritated when students ask questions. A teacher should have a friendly and permissible attitude.
5. Students should acknowledge, appreciate, and encourage each other to ask questions
6. Students, boys as well as girls, who ask questions should be positively reinforced and rewarded immediately so that they get encouraged and are willing to ask more questions.
7. A teacher should answer the questions asked by students in one or the other way so that students' interest in asking questions is not diluted. Otherwise, they would feel that they are asking questions simply for the sake of asking them, and may gradually lose interest in posing questions if they are not responded to.

8. Students should be given some topics as a home assignments for reading and comprehension and asked to raise questions related to those topics on the next day in the classroom.
9. Teachers, administrators, and parents should understand the level of sensitivity adolescents have towards the opposite sex and avoid those things which directly or indirectly, lead to embarrassment of these adolescents before the opposite sex.
10. Discussion sessions should be arranged after completion of each unit of the syllabus. This will automatically encourage the question asking behavior of students.
11. A teacher has to determine the strategies and devices which help the students overcome the hesitations which come in their way to participate. A teacher needs to know which strategies are useful and workable for his classroom. It should be a continuous endeavor on the part of the teacher.
12. Morning assembly session should be conducted to help in the eradication of fear and shyness from students not merely for the sake of morning assembly or for the reproduction of what is learnt in the classroom.
13. Time should be allocated for asking questions towards the end of each lecture.
14. Some weightage should be given to question-asking in the classroom, out of the total marks earmarked for a subject in an academic year.

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