

ATTITUDE TOWARDS SCIENCE OF GIRLS IN CO-EDUCATIONAL SCHOOLS AND IN ALL GIRLS SCHOOLS: A COMPARATIVE STUDY

Rabia Ismail

Research Scholar, Department of Educational Studies, Jamia Millia Islamia, New Delhi, India

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ABSTRACT

The present study focused on the attitude of girls towards science in two different school settings. One was co-educational school and other was all girls school. The purpose of the study was to determine the attitude and experiences of girls in two different settings. It was found that the experiences were more positive in all girls school.

KEYWORDS: *Attitude towards Science, Co-Educational Schools, Girls Schools*

INTRODUCTION

“Science is a series of empirical observations which result in the formation of concepts and theories with concepts and theories being can be subjected to a modification in the light of further empirical observations. Technology is often equated to applied science and its domain is generally thought to include mechanical, electrical, optical and electronic devices”. Our very definition of progress is linked with advances in science and technology. These advances have led to unimagined new fields of work and transformed, often beyond recognition, traditional fields like agriculture, manufacturing, construction, transportation and entertainment. People today are faced with an increasingly fast-changing world where the most important skills are flexibility in adapting to new opportunities. These imperatives have to be kept in mind in shaping science education (National position paper on the teaching of science, 2006, NCERT).

GENDER AND SCIENCE EDUCATION

Studies have shown that girls in the same class get science education differently from boys due to the existence of gender bias. Gender bias, and its corollary, gender equity, describe the comparison of opportunities and treatment available to males with those available to females. Jones & Wheatley (1990) observed science classrooms and found that when boys call out, teachers tend to accept their answer but when girls call out teacher remediates their behavior. Boys are trained to be assertive whereas girls are tending to be passive. Females receive significantly less praise, direct questions and behavioral warnings from their teachers (Becker, 1982). The materials used to teach science in schools, such as textbooks, bulletin board materials, Computer software etc also reflect the gender bias in science (Jones & Wheatley, 1989). Science is considered by the majority of girls still as an exclusively male subject and they keep away themselves from science. Majority of girls develop a feeling of “not being able” to do science subjects especially physics and chemistry. It is observed and discussed in

societies and cultures worldwide. Apart from studying science at school these gender differences towards science are caused due to the difference in socialization. Girls and boys both have prior experience which affects them; boys are socialized in a way that they get in contact with science activities (Erickson & Farkas, 1991).

METHODOLOGY

The present study was based on field study from schools of the central district of Delhi. Sample was selected on a convenience basis. Two senior secondary schools were selected. One school was senior secondary co-educational school and the second was all girls senior secondary school. The sample consisted of 20 girls studying in IX standard from each school. These girls were selected randomly. The girl students were of 14-16 age groups and the majority of them came from middle-class socio-economic background. Thus a total of 40 girl students were selected as a sample of the present study.

TOOL

A structured interview was used in the study as a tool. This was the structured interview based on the previous research and theory in the field. The questions asked were related to girl's interest in science, their perceptions, and feelings towards science, experiences with science, a career in science, feeling towards gender bias in science & classroom participation.

DATA ANALYSIS

Data being descriptive in nature was subjected to the content analysis and data was analyzed qualitatively. The results were analyzed on the basis of different categories and interpreted based on their percentages. Frequencies and percentages were calculated for each item of the questionnaire.

The responses of the students from the data collected were subjected to very detailed scrutiny. On the basis of the responses, a number of categories and their subcategories were constructed.

A classification was then done under the following headings:

- Girl's interest in science
- Girl's perception of a career in science
- Girl's perceptions towards school science
- Girl's feelings towards gender bias in science
- Girls and classroom participation
- Girl's experiences with science

RESULTS

The major findings of the study are:

Girl's Interest in Science

Girls of all-girls school like science more than that of co-educational school. Girls of co-educational school don't like school science much because of its mathematical nature. Girls of both the school like doing practical, reading about inventions and discoveries, drawing diagrams etc in school science. Girls of all-girls school more like to watch national geographic or discovery channel than girls of the co-educational school.

Girl's Perceptions of a Career in Science

Majority of girls in allgirls school are willing to take up science stream in 11th standard than girls of the co-educational school. Humanities and commerce streams will be preferred more by girls of co-educational school than girls of all girls school. Girls of both the schools are of the opinion that science helps in getting a good job but girls in co-educational school also think that boys are more suitable for these jobs. Majority of girls in both the schools chose M.B.B.S as a career in comparison to B.Tech. The reason being girls feel more comfortable with studying biology.

Girl's Perception of School Science

Girls of allgirls school do not face much difficulties in learning school science whereas girls of co-educational school find it difficult because they feel lagging behind in understanding physics concepts, doing calculations and solving numerical. Girls of allgirls school were more confident towards their learning in science than girls of the co-educational school. Girls of allgirls school were more praised by their teachers for their good performance than girls of co-educational school which increases their confidence.

Girls Feeling towards gender Bias in Science

Majority of girls in co-educational school view boys as being better in doing science than girls whereas the majority of girls in allgirls school is of the view that both boys and girls are equally better in doing science as it depends on hard work and intelligence rather the gender. Girls of co-educational school think that boys are better in doing science than girls because of their class performance where they see them quickly understanding scientific concepts, numerical, equations and giving answers.

Girls and Classroom Participation

Girls of co-educational school feel inferior to boy's performance in the science classroom. Girls of co-educational school do not feel comfortable questioning/answering in a science classroom because boys always try to gain teacher's attention and sometimes do create fun of girls asking questions whereas no such uneasiness happens in allgirls school. Girls of all girls feel very much comfortable questioning/answering in the science classroom.

Girls Experiences with Science

Parents of girls of both the schools are supportive of their daughters making a career in science. Parents of girls of both the schools support them by helping them in studies, giving emotional support and motivation, arranging a tutor for them etc.

CONCLUSIONS

It was found that school type factor also plays a significant role in forming an attitude towards science. Girls of allgirls school were having a more positive attitude towards science. Girls of both the schools have almost the same experiences in terms of parents. So the attitudinal difference is accounted to school experiences related to science. It was found that girls of co-educational were not very happy with learning science especially physics and chemistry and were not confident of their ability to do better in these subjects as compared to girls of allgirls school because of unhealthy competition with boys that is leading to build the inferior complex in girls towards performance in science. These findings were in accordance with previously done studies on gender (tobin&garnett 1987, Taber 1992, Gillibard 1999, sinha&asha 1995) which implies the prevalence of gender inequity still in our co-educational science classrooms. Boys in co-educational school try to dominate classroom interactions mainly in physics and chemistry leaving only a small space for girls to interact and let the girls consider themselves as the deviant minority in science classes.

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