Research Article

GENDER ROLE ATTITUDE OF STUDENTS AS INDICATOR OF SCHOOL EFFECTIVENESS

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ABSTRACT

This research was undertaken to compare gender role attitude as a measure of school effectiveness among students coming from schools with different Board affiliations. School effectiveness was also evaluated by estimating the residual outcome of gender role attitude after controlling for socio-economic status and prior academic achievement.

Of 997 students studied (558 girls, 439 boys), 66.4% were from the SSC Board, 19.7% from ICSE, 10.5% from CBSE and 3.4% from IGCSE; 53.6% were from Science faculty, 17.1% from Commerce and 29.4% from Arts.

Students from schools affiliated to the SSC Board had the lowest mean raw gender role attitude score. When the socio-economic status was controlled, the residual gender role attitude score was similar in the schools affiliated to the various Board types. When the academic achievement score was controlled, the residual gender role attitude score was lower in schools affiliated to the SSC Board as compared to those from the ICSE and CBSE Board types.

School type had minimal effect on gender role attitude score; there was no net effect after controlling socio-economic and academic achievement scores.

INTRODUCTION

Employers in today's world require their workforce to have soft skills that supplement their professional and technical expertise. Among the desirable psycho-social characteristics is gender role attitude. A gender role is a constellation of qualities an individual understands to characterise male and female in his or her culture. These qualities include activities, role relations, social position, personality characteristics, and a host of abilities and behaviours. From the birth of a child, the gender role attitude kicks in, with the boy-child groomed to be more "manly", which includes attributes like strength, aggressiveness and emotional paucity, and the girl-child groomed to be more "womanly", with attributes like beauty, docility, compliance and homeliness. Defenders of this discrimination argue that it is a biological fact observed across the animal kingdom, with few exceptions. The sources of gender role attitudes are explained from four interrelated perspectives: gender difference, family life and personal resources, social normative, and paid employment life (Tu, 2000).

Contemporary theories of gender development are complementary rather than contradictory (Martin, Ruble, Szkrybalo, 2002). Most theories acknowledge the combined influences of social-structural, interpersonal, cognitive-motivational and biological influences.

According to the social-structural processes theory, the skills and orientations that children develop are rooted in the historical and cultural activities in the community in which they and their companions interact (Rogoff, 1990). Children's gender development is embedded in a larger societal context. The social-structural approach considers how people's relative status and power in society shape their personal circumstances. This approach also addresses the constraints that such roles impose on a person's behaviour.

The social-interactive processes theory requires one to link cultural institutions to individuals situated in their specific environments. Children's social interactions and daily activities are contexts for the learning of culture. The different opportunities that girls and boys experience are forms of gender discrimination (Leaper, 2000). Since these are repeated often during childhood, they contribute to the development of gender differences in expectations, values, preferences and skills (Leaper, Friedman, 2007).

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Children internalise culture's notions of gender once these become symbolic. As they form cognitive representations of gender or gender schemas, they begin to filter the world through a gender lens. Girls and boys make inferences about the meaning and consequences of gender-related behaviours from their observations and social interactions. Consequently gender-typed environments strengthen gender-typed expectations and interests.

Biological factors (hormones) influence gender development. Physical sex differences, in interaction with social and ecological conditions, influence the roles held by men and women because certain activities are more efficiently accomplished by one sex (Wood and Eagly, 2002). Some researchers have suggested that the magnitude of sex-related biological influences is small but they get exaggerated during development, especially if the biological trend is consistent with prevalent gender proscriptions.

In India, female foeticide or infanticide is widespread enough to alarm epidemiologists. One reason for this is that the girl-child is considered less productive (except for biological reproduction) and more of a liability (the burden of dowry); standard inheritance rights have been denied to the girl who survives such adversities. The Indian culture has paradoxical roles for its women – the worshipped mother cult and goddess in direct conflict with the suppressed sex-object and homemaker. The media plays a dual role of glamorising women but with an undercurrent of sexuality.

Teachers can moderate the salience of gender in children's daily lives and so have an impact on the development of gender-related self-concepts and attitudes. Peer influences in the classroom can have similar effects. Teachers also contribute to the gender typing of children's play. In the arena of sports, some schools and their coaches may even encourage athletic contests more than scholastic achievements. Since this is often a largely male domain, it may serve to place the male athlete on a higher social plane in school.

As a consequence of these, gender perceptions and attitudes and occupational roles and achievements may stem from academic experiences and play behaviours in school. Sexist practices can be traced back to gender-typed interactions with peers in school. Although these patterns of gender development tend to occur, they are not inevitable outcomes.

Research on school effectiveness also focuses on pupils' progress considering their background and initial attainment. A school's effectiveness is described as "one in which pupils progress further than might be expected from consideration of its intake" (Mortimore). An effective school adds extra value to its students' outcomes in comparison with other schools. The term *value added* is used to mean the extent to which students may have exceeded or fallen below the expected progression from a given starting point. A value-added measure is one that attempts to describe the educational value that the school adds over and above that which would have been predicted given the student background variables and prior academic achievement of the students within the school.

How effective is our education system in fostering gender role attitude? Are there differences in the various curricular Board types in achieving this? Little work has been done on comparison of gender role attitude between school types by Board affiliation. We attempted to answer these questions by evaluating and comparing gender role attitude in students from schools affiliated to the various Board types.

The present research has adopted the value-added approach to the study of school effectiveness. Accordingly, school effectiveness was also evaluated by estimating the residual gender role attitude after controlling for socio-economic status and academic achievement.

Definition of the Terms

School Effectiveness: It is defined as the extent of the effect size of the school on gender role attitude of students after controlling for their socio-economic status and academic achievement.

Relative School Effectiveness: It is defined as comparative effect of the different school types by Board affiliation in enhancing gender role attitude in students.

School Types by Board Affiliation: In the present study, this includes the Secondary School Certificate (SSC) schools affiliated to the Maharashtra State Board of Secondary and Higher Secondary Education set up by the State of Maharashtra, the Indian Certificate of Secondary Education (ICSE) schools affiliated to the Council for the Indian School Certificate Examination, the schools affiliated to the Central Board of Secondary Education (CBSE) set up by the Central Government, and the schools providing the International General Certificate of Secondary Education (IGCSE) conducted by the University of Cambridge International Examinations.

Gender Role Attitude: A gender role is defined as a constellation of qualities an individual understands to characterise male and female in his or her culture. These qualities include activities, role relations, social position, personality characteristics, and a host of abilities and behaviours.

Socio-economic Status (SES): It is defined as the extent to which wealth, power and prestige are enjoyed by the person and his/her family

Academic Achievement (AA): It is defined as the overall percentage obtained by a student in standard X examination.

Aim of the Study

The study was undertaken to compare gender role attitude among students coming from schools with different Board affiliations.

Objectives of the Study

The study was conducted with the following specific objectives:

1. To compare (a) raw gender role attitude, (b) residual gender role attitude scores after partialling out the effect of SES, and (c) residual gender role attitude scores after partialling out the effect of AA, among students coming from schools with different Board affiliations.
2. To ascertain the gross and net effect size of school types by Board affiliation on (a) raw gender role attitude scores, (b) residual gender role attitude scores when the

effect of the socio-economic status of the student is partialled out, and (c) residual gender role attitude scores when the effect of the academic achievement of the student is partialled out.

METHODOLOGY

The present study is of the descriptive type because it is based on the findings of exploratory research done by earlier researchers. The research includes students' gender role attitude as it exists and studies it after the effect of the school types has already taken place. The study aims to determine the effectiveness of schools of the Board types in the development of gender role attitude, and draw comparative conclusions for implementation. Hence it is a descriptive research of the causal-comparative type.

Sample of the Study

Students in the first year of education in Junior Colleges are the population of the present research. Though the research aims to study the influence of school types by Board affiliation, the population consists of first-year junior college students as it enables the researcher to study the influence of school types when the students have just completed their schooling. In order to do this, the data were collected as soon as the standard XI classes began so as to avoid the influence of college characteristics on students.

Comparison between the effects of education in the various school types would be more rational if the students under study have spent at least the last three years of their school education in one school type, giving adequate opportunity for an impact. The present research therefore studies fresh students of Junior Colleges who have spent at least the last three years of their school education in one school and who have just joined First Year Junior College at the very beginning of the academic year.

The population comprises students studying in Standard XI in Junior Colleges affiliated to the Maharashtra State Board of Secondary and Higher Secondary Education and situated in Greater Mumbai, or Junior Colleges attached to schools affiliated to the Central Board of Secondary Education (CBSE) or to the International General Certificate of Secondary Education (IGCSE) situated in Greater Mumbai.

The sample of the present research was selected using a three-stage sampling technique. At the first stage, Junior Colleges and schools situated in South Mumbai, North Mumbai and Central Mumbai were selected using stratified random sampling where the strata included the geographical location of the school/college.

At the second stage, the schools/colleges were selected using stratified random sampling, where the strata were the Arts, Science and Commerce streams.

At the third stage, students were selected using the incidental sampling technique due to reasons beyond the researcher's control.

Care was taken while selecting the sub-samples to ensure that these are in proportion to the number of students passing the Standard X examinations from the SSC, ICSE, CBSE and IGCSE school types.

The sample in the present study included 1063 students. Of these, data from 66 students were not included for analysis (6.2% data wastage rate). Of the 997 students in this research (558 girls, 439 boys), 66.4% were from the SSC Board, followed in order by the ICSE (19.7%), CBSE (10.5%) and IGCSE (3.4%) Boards. Of these, 534 (53.6%) were from Science faculty, 170 (17.1%) from Commerce and 293 (29.4%) from Arts. Table 1 shows the sample size of the study.

Table 1 Sample Size

		Total	
		N	Percent
a	No. of students enrolled	1063	100
b	No. of students excluded	66	6.2
	Reasons for exclusion	No. excluded	
	From National Institute of Open Schooling (NIOS)	3	
	Not spent last three years in same school	9	
	Incomplete information	54	
c	No. of students analysed (a – b)	997	93.8

Tools of the Study

For the purpose of measuring the psycho-social variables, only tools of research that can be quantified were used. The following tools that have been validated and published earlier were used:

1. Gender Role Attitude Scale by Gupte (2000)
2. Socio-economic Status Inventory by Patel (1999)

The tools were administered over a set duration of 90 minutes in each college. The researcher initially gave the pupils general instructions. She ensured that personal details were entered completely, by individually scrutinising them while the test was in progress.

Techniques of Data Analysis

The following techniques of data analysis are used

1. Descriptive Statistics, including measures of central tendency and variability as well as estimation of population parameters.
2. Inferential Statistical Techniques
   a. One-way ANOVA (followed by a post-hoc Tukey's multiple comparison test when appropriate)
   b. Dyer's regression-residuals method

In order to partial out the effect of socio-economic status scores on the gender role attitude scores, the residual scores of gender role attitude were calculated after partialling out the effect of socio-economic status scores. This analysis was done using Dyer's Regression Residuals Method, as follows:

Initially the coefficient correlation (r) between raw scores of gender role attitude and socio-economic status scores of students was computed. This was followed by computing the regression equation of the scores of the psycho-social variable (y) on socio-economic status scores (x). Using this regression equation, every student's expected score of gender role attitude was computed using his or her socio-economic score. The residual score was computed as

Residual Score = Actual (Raw) Score – Expected Score

A similar process was followed for partialling out the effect of academic achievement scores on gender role attitude scores.

Cohen's f for effect size

Cohen's *f* is defined as the standard deviation of the mean score of the groups divided by standard deviation for the total sample. For Cohen's *f* an effect size of 0.2 to 0.3 might be a "small" effect, around 0.5 a "moderate" effect, and 0.8 to infinity, a "large" effect.

Data Analysis

In order to achieve the objectives, null hypotheses have been formulated for the study.

Null Hypothesis 1: There is no significant difference in the raw gender role attitude scores of students coming from different school types by Board affiliation.

The technique used to test this hypothesis is one-way ANOVA. The raw gender role attitude scores of students were classified on the basis of school types by Board affiliation in terms of SSC, CBSE, ICSE and IGCSE (Table 2).

Table 2 Raw Gender Role Attitude Scores by Board Types

BOARD	MEAN	95% Confidence Intervals of Means	SD	95% Confidence Intervals of SD
SSC	66.06	65.87 to 66.85	10.34	10.05 to 10.63
ICSE	69.87	68.51 to 71.23	9.64	9.15 to 10.13
CBSE	70.26	68.52 to 71.99	8.96	8.34 to 9.58
IGCSE	70.74	66.63 to 74.84	11.76	10.33 to 13.19
Total	67.41	66.77 to 68.05	10.28	10.05 to 10.51

Table 3 shows the ANOVA for raw gender role attitude scores of students by Board types.

Table 3 Anova for Raw Gender Role Attitude Scores by Board Types

Source of Variation	SS	df	MSS	F
Among Means	3611	3	1204	
Within Group	101700	993	102.4	11.75
Total	105300	996		

Tabulated F for df = (3, 993)
= 2.605 at 0.05 level
= 3.782 at 0.01 level

The F-ratio was found to be 11.75, which is significant at 0.01 level for df = (3, 993). Hence the null hypothesis is rejected. Since the F-ratio was significant, Tukey's Multiple Comparison Test was applied, as shown in Table 4.

Table 4 Tukey's Multiple Comparison Test for Raw Gender Role Attitude Scores by Board Types

	Mean Raw Gender Role Attitude Score	Q	P value
SSC	66.06	6.536	P < 0.001
ICSE	69.87		
SSC	66.06	5.578	P < 0.001
CBSE	70.26		
SSC	66.06	3.712	P < 0.05
IGCSE	70.74		
ICSE	69.87	0.45	P > 0.05
CBSE	70.26		
ICSE	69.87	0.653	P > 0.05
IGCSE	70.74		
CBSE	70.26	0.339	P > 0.05
IGCSE	70.74		

By the Tukey's Multiple Comparison Test, the difference is significant between the schools of the SSC Board type and those of the other Board types.

Conclusion: The mean raw gender role attitude score was lowest in the schools of the SSC Board type. However, there was no difference in mean scores between schools of the ICSE, CBSE and IGCSE Board types.

Null Hypothesis 2: There is no significant difference in the residual gender role attitude scores of students coming from different school types by Board affiliation when the effect of the socio-economic status of the student is partialled out.

The technique used to test this hypothesis is ANCOVA. The residual gender role attitude scores of students are computed using the Dyer's regression-residuals method. The regression equation for gender role attitude score on socio-economic status score is y = 0.0988x + 55.271. The residual gender role attitude scores of students were classified on the basis of school types by Board affiliation in terms of SSC, CBSE, ICSE and IGCSE. Table 5 shows the ANCOVA for residual gender role attitude scores after partialling out the effect of socio-economic status scores of students by Board types.

Table 5 Ancova for Residual Gender Role Attitude Scores by Board Types after Partialling Out Effect of Ses

Sources of Variation	SS	df	MSS	F
Among Means	296.1	3	98.7	
Within Group	92210	993	92.86	1.063
Total	92510	996		

Tabulated F for df = (3, 993)
= 2.605 at 0.05 level
= 3.782 at 0.01 level

The F-ratio was found to be 1.063, which is not significant at 0.05 level for df = (3, 993). Hence the null hypothesis is accepted at 0.05 level.

Conclusion: The mean residual gender role attitude score was similar in the schools affiliated to the various Board types after partialling out socio-economic status.

Null Hypothesis 3: There is no significant difference in the residual gender role attitude scores of students coming from different school types by Board affiliation when the effect of the academic achievement score of the student is partialled out. The technique used to test this hypothesis is ANCOVA. The residual gender role attitude scores of students are computed using the Dyer's regression-residuals method. The regression equation for gender role attitude score on academic achievement score is y = 0.165x + 54.43. The residual gender role attitude scores of students were classified on the basis of school types by Board affiliation in terms of SSC, CBSE, ICSE and IGCSE. Table 6 shows the ANCOVA for residual gender role attitude scores after partialling out the effect of academic achievement scores of students by Board types.

Table 6 Ancova for Residual Gender Role Attitude Scores by Board Types after Partialling Out Effect of AA

Sources of Variation	SS	df	MSS	F
Among Means	2165	3	721.8	
Within Group	99340	993	100	7.215
Total	101500	996		

Tabulated F for df = (3, 993)
= 2.605 at 0.05 level
= 3.782 at 0.01 level

The F-ratio was found to be 7.215, which is significant at 0.01 level for df = (3, 993). Hence the null hypothesis is rejected. Since the F-ratio is significant, Tukey's Multiple Comparison Test was applied, as shown in Table 7.

Table 7 Tukey's Multiple Comparison Test For Residual Gender Role Attitude Scores By Board Types After Partialling out Effect of AA

	Residual Gender Role Attitude Scores		Q	P value
	Mean	SD		
SSC	-1.05	10.24	5.374	P < 0.01
ICSE	2.04	9.44		
SSC	-1.05	10.24	4.107	P < 0.05
CBSE	2.00	8.96		
SSC	-1.05	10.24	2.787	P > 0.05
IGCSE	2.42	11.40		
ICSE	2.04	9.44	0.047	P > 0.05
CBSE	2.00	8.96		
ICSE	2.04	9.44	0.286	P > 0.05
IGCSE	2.42	11.40		
CBSE	2.00	8.96	0.298	P > 0.05
IGCSE	2.42	11.40		

By the Tukey's Multiple Comparison Test, the difference is significant between the schools of the SSC Board type and the schools of the ICSE and CBSE Board types.

Conclusion: The mean residual gender role attitude score was lower in schools affiliated to the SSC Board as compared to schools affiliated to the ICSE and CBSE Board types after partialling out academic achievement score. There was no difference in the mean residual gender role attitude scores between schools affiliated to the IGCSE and other Board types.

Effect Size

The effect size of school on individual modernity and gender role attitude was computed using Cohen's *f* as shown in Table 8, which shows the gross and net (after partialling out socio-economic status and academic achievement scores) effect of school type by Board affiliation on gender role attitude scores.

Table 8 Effect Size of School Types on Individual Modernty and Gender Role Attitude Scores

	Gender Role Attitude
Gross Effect Size	0.212
Net Effect Size (SES partialled out)	0.135
Net Effect Size (AA partialled out)	0.159

The preceding Table shows that school type had minimal gross effect on gender role attitude scores; there was no net effect on gender role attitude score when socio-economic status and academic achievement scores were partialled out.

CONCLUSION: The minimal effect of school type on gender role attitude score decreased to no net effect on partialling out socio-economic and academic achievement scores.

CONCLUSIONS

- Students from schools affiliated to the SSC Board had less positive gender role attitude as compared to students from schools affiliated to the other Board types.
- When the effect of the socio-economic status of the student was partialled out, there was no difference in the residual gender role attitude score in schools affiliated to the various Board types.

- When the effect of the academic achievement score was partialled out, the gender role attitude was less positive in schools affiliated to the SSC Board as compared to schools affiliated to the ICSE and CBSE Board types.
- School type had minimal effect on gender role attitude score; there was no net effect on partialling out socio-economic and academic achievement scores.

Implications of the Study

- The lower scores obtained by students of the SSC Board may be attributed to conservative social backgrounds, because the effect of the Board on gender role attitude disappeared when the socio-economic status was partialled out.
- Still, schools affiliated to the SSC Board will need to review their curriculum and teaching-learning methods to identify areas that promote gender bias or inequality.
- Contemporary and diverse approaches and methodologies should be adopted by these schools and the SSC Board to introduce measures to promote positive gender role attitude. These may include use of neutral pronouns in their textbooks, discouraging sex-determination methods, discussing problems of working women, and expressing dissatisfaction with traditional gender roles and identities.

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