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Does same gender schooling matters more than the both gender schooling for exam scores?

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ABSTRACT

It is unknown to what degree single-gender classrooms relate to the overall student performance, when compared to the performance of students coming from co-educational school setting. It is thus imperative for educators and parents alike to note whether or not the single-gender classrooms have an effect on academic performance, in order to close the gender gap. This study investigated whether there is any difference between the academic performances (exam results) of: the students coming from the co-educational classrooms, and the students from the same-gender classrooms. In order to examine this objective, eight schools of Karachi (Pakistan) were selected, among which four schools are co-educational while the other four are single-gender. For this research, Classes 1 till Class 10 were taken into consideration, and the average results are selected for the analysis in order to determine the relation between the results of the single-gender setting and the coeducational setting. The statistical technique of the Independent Sample T-test was used in order to examine any significant differences between the academic performances (exam results) of the students coming from the two settings. The findings of this research indicated that there are statistically significant differences in the academic performances (exam results); suggesting that on average, students from the single-gender classrooms have a significantly higher mean of exam-performance than do students from the co-education classrooms. To conclude, the said phenomenon is observed among students, which shows that academic performance can be gauged by the level of involvement students have in the class rooms.

Keywords: Co-education, Single-gender, Academic performance.

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Introduction

In any institution there are three types of class-room settings: all male, all female, and co-ed. In the eastern countries, especially those from the South East Asia, co-educational system is a growing phenomenon, which is anchoring its roots in the social-structure. Even with the opposition from different religious-groups who consider co-education as against the laws of their religion and not in accordance with the religious-teachings; yet co-education, with all its criticism and opposition, is a growing phenomenon in the South East Asian Countries. Parents, teachers and students, have different views with regard to the gender setting of the class-rooms. A growing percentage thinks that with co-education comes the ability to be confident, in order to better interact with the society, and grow in professional careers. On the other hand, a specific percentage of people also that think that the single-gender education system is better for the society; according to their point of view, students are better able to concentrate on their studies and there is no gender-discrimination.

The purpose of this research was to examine how the two types of settings affect exam scores or student achievement. In different areas across the world, different settings are encouraged based on the respective culture and tradition. In the Western world, the educational setting is primarily of co-education, which is quite normal with regard to there culture.

Moreover, certain aspects of the co-educational system increase the competitiveness and sense of growth, since students not only face good students of their own gender, but also of the opposite gender. This leads to be a more competitive environment, but there are also de-merits attached to it, such as: gender biasness, sexual harassment and sense of inferiority.

Literature Review

Women are not given equal value when compared to men in the fields of advance mathematics, science, and engineering. As previous research showed that men have high scores in mathematics than do women; Single-gender education is thus a mechanism to decrease the gap. Policy makers are now concerned about closing the gender-gap and increasing the representation of females, and have come to encourage their participation in more technical subjects. Smithers & Robinson (2006) argued that benefits that of the single-gender setting are based on the selection of school; McFarland, Benson, and McFarland (2011) described that females who attended single-gender schools, were benefitted from it.

A study determined the potential mechanism in order to identify the relationship between single-gender education and co-educational environment (Steele, Spencer, & Aronson, 2002). If women are consistent in doing more tasks, attending their classes and doing all assignments then they can nullify the stereotypes regarding the gender-gap but there is no proper mechanism, which can help policy-makers decide whether the single-gender educational system or the coeducational systems leads to better academic-performance (in higher education) of females.

Since the last century, another debate has started out about the comparative advantages and disadvantages of the single-gender classes and the co-education; claiming that, the co-educational system discouraged homo-sexuality and improved the quality of marriage. In the 1990s, debate continued as to which type of schooling lead to better results and evidence suggested that the single-gender education could actually be helpful in getting good grades. Angrist and Lavy (1999) believeed that the merits and demerits of the single-gender system and the coeducational system had been debated extensively.

Lee & Bryk (1986) concluded that the single-gender system provided with an academic climate for both the males and females, which is free from distractions. However, Yates (2004) argued that the single-gender system is beneficial for males as it promotes their

character development. Furthermore, boys are more interested in pursuing their career in single-gender class, in order to avoid being pressurized by stereo types by taking courses in co-educational schools (Hubbard & Datnow, 2005).

On the contrary, co-education benefits the social and personal development of the students. Smithers & Robinson (2006) stated that educating the students of both genders within one class-room helped the exchange and development of culture between the both the genders and thus may help solve many basic inter-gender problems. Another advantage of co-education is cost effectiveness as less of both the teachers and class-rooms are required. Moreover, harmonious relationships between the members of both the genders can be formed, leading to better family-lives, which promotes an exchange of knowledge, understanding, and respect (Nagengast, Marsh, & Hau, 2013).

There is no unanimity as to which kind of schooling serves a better purpose. Another debate is about the academic achievement, measured through standardized tests. In co-education system girls have better exams scores than boys. A significant drop in the exam-performance of students from both the genders is observed at the middle school level in co-education system (Sadker, Jacobs, .& Wiggins, 1994).

There was also a question that why girls have a learning advantage when compared to boys, to which Booth and Nolen (2012a) stated that boys are not learning with much devotion and not succeeding in their academic careers either; it seems that they are better suited to a different learning-style than girls. Booth and Nolen (2012b) also suggested that the factors affecting boys' performance and learning in a co-educational are: stereotyping, family's environmental influence, peers, media and the entertainment industry.

Behavioral difference is a predominant factor when it comes to the educational processes resulting from the single-gender classes or the coeducational environments. Boys require special services and attention, when leading to violation of discipline in school (Cohen, Garcia, Purdie-Vaughns, **&** Apfel (2009); Sax, (2005). However, very little research is conducted on the effects of the single-gender system on males; although it has been shown to have positive results for the females (Hoffman, Badgett, & Parker, 2008).

More explicit teaching and proper instruction tended to boys for career growth prospects such as trainings and structured programs help boys realize and think about their futures, leading them to consider as to what future plans to make (Cresswell, Rowe & Withers, 2002).

The identification of the school (co-education system or single gender school) the student should select, ought to be based on proper research, including: Follow up and large representative children sample, Selection of school based on cognitive factor and choice and Secondary school progress of the students. This design will affect the social background of student before secondary admission (Nagengast, Marsh, & Hau, 2013).

The advocates of the single-gender education system believed that with separating the boys and girls, student achievement and academic-results increase. advocates believed that the interested families should be able to avail the option of single-gender schools. In this case, parents and schools management share accurate information as to whether the single gender program yields better outcomes than the coeducation program (Booth, & Nolen, 2012a).

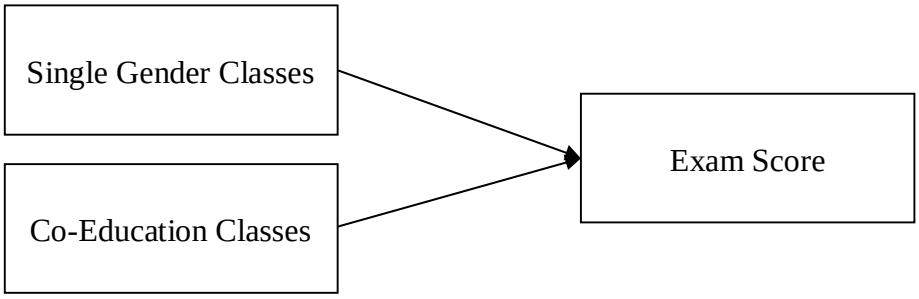
Woodward, Fergusson, and Horwood (1999) studied regarding the influence of gender on academic-achievement over the years by using several variables such as achievement, attitudes, motivation, interest, performance and behaviors. Previous researches indicated that boys demonstrate a more positive attitude towards the learning of scientific materials than do girls. This has been attributed to many factors, including: girls' lack of exposure to science-related activities outside the classroom (Kahle & Lakes, 1983), a decrease in girls' ability of scientific perception over the school year (Jovanovic & King,

1998), gender biases of the teachers with respect to strategies for asking questions and providing answers (Greenfield, 1997), abilities of the teachers (Gray, 1981), cognitive abilities of the teachers (Meyr & Koehler, 1990)and differences in mathematics background between the girls and the boys. Kahle, Parker, Rennie and Riley(1993) hypothesized that the interaction between six factors, which are student behavior in the science classroom, observable student outcomes, teacher behavior in the science classroom, students' beliefs and attitudes, teachers' beliefs, attitudes, and previous experience in a socio-cultural educational environment influences the relationship between gender and performance.

Research Methods

Secondary data was collected from the eight schools of different regions of Karachi, where the average results of 2013-2014 of Class 1 till Class 10 are chosen in order to identify the relation between the single-gender system and the coeducational system. The Independent sample T-test was deployed in order to assess the hypotheses. The data was collected from school management, teachers, and administration staff by requesting for the academic results of the classes from 1 till 10. Eight schools of Karachi which were selected, comprised upon four co-education and four single-gender education system.

Figure1: Model for Research to identify Independent and Dependent Variable



Results

Table 1: Group Statistics

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Percentage	Co-Education	40	.8382	.09218	.01457
	Single Gender	40	.8900	.06699	.01059

Table 1 presents the descriptive statistics (n, mean, std. deviation, and std. error mean) of academic scores of the both types of students. The results show that apparently, students from the single-gender classrooms have a higher mean with less std. deviation as compared to the students from co-education classrooms. In order to test this scenario, the following table shows the statistical results of the difference of scores between the students from co-education classrooms and those from single-gender classrooms.

Table 2: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	**Sig.**	**t**	**Df**	**Sig. (2-tailed)**	**Mean Difference**
Percentage	**Equal variances assumed**	4.773	0.032	-2.872	78	0.005	-0.0518
	Equal variances not assumed			-2.872	71.209	0.005	-0.0518

Table 2 indicated that there are statistically significant differences (P<0.05, equal variances assumed) in the academic performance (exam results) of the students from the two systems. The results indicated that on average, students from the Single-Gender classrooms have a significantly higher mean of exam-performance (.8900) when compared to the students from co-education classrooms (.8382). Moreover, standard deviation indicated that exam results of the students from co-education classrooms are moderately dispersed across the average exam results, while exam results of the students from single-gender classrooms are closer to the average exam results. This study therefore found that students in co-education classrooms had statistically significantly lower academic-scores when compared to students from the single-gender classrooms, t (78) = 2.872, p = 0.05.

Discussion and Conclusion

It is not known as to what degree a single-gender classroom relates to the overall student performance, as when compared to the gender-performance in a co-education school setting. It is thus imperative for educators and parents alike to note whether or not the single-gender classrooms have an effect on the academic performance, in order to close the gender gap. This, in return can greatly benefit the students, if modifications are made accordingly in the instruction and the environment by both the educators and the parents. This research investigated whether there is any difference between the academic performances (exam results) of the students coming from co-educational classrooms and the students from same-gender classrooms. Nagengast, Marsh and Hau (2013) asserted that school setting does not have a bearing on student achievement. Contrary to their assertion, school setting, design, or environment did have an impact on the four schools under this study; at least as measured by math scores, school setting does have an impact, which can be statistically significant. The trend toward greater score achievement within both genders and across four school types is demonstrable in the extant research. This research also goes contrary to the research from Inzlicht and Ben-Zeev (2000) and Gunderson, Ramirez, Levine and Beilock (2012), who asserted that females become distracted from and achieve at lower levels when in a co-educational setting; have gains in achievement under a single-gender setting.

Previous research conducted by Shapka and Keating (2003) pointed out how females were shown to lose interest in mathematics during the adolescent years and can benefit from

being placed in single-gender settings. However, this study suggested that the females had a higher overall percentage-average than the male students. It has been argued that boys are at a disadvantage when it comes to schooling and the best way to accommodate both sexes is to have separate classrooms so that both can get the attention and motivation that they need in order to attain certain goals (Sax, 2005). Consistent to this research, students in a single-gender setting performed higher than the students from co-education environmental setting.

In addition, Lloyd, Walsh, & Yailugh (2005) conducted a quantitative study that supports the results of this study, claiming that mathematics-achievement was related to the differing beliefs related to math achievement. The participants in this study included a total of 62 fourth-graders which included 37 males and 25 females, in addition to 99 seventh graders which included 43 males and 56 females. The study suggested once again, that the girls outperformed the boys, in the same way the female students in this study are suggested to have with the girls having the mean FSA Numeracy score of 510.64 with a standard deviation of 84.24, and the boys having a mean score of 496.12 with a standard deviation of 83.82. However, the girls lacked of self-confidence when compared to the boys. The results from the mathematics-achievement variables also showed the gender gap narrowing but on the other hand the girls' achievement-level on their report-cards was considerably higher than the boys.

The findings of this research indicated that there are statistically significant differences in the academic performances (exam results); suggesting that on average, students from the Single-Gender Classrooms have a significantly higher mean of exam-performance than do the students from the Co-education Classrooms.

The continuing issue of student achievement, commonly referred to as the "achievement gap", has primarily focused on socio-economic factors such as teaching styles, and the type of curriculum implemented. Within the current research, such factors were not measured, explicated, analyzed or included. Across this research, the proposition was primarily focused on the outcomes resulting from school setting: single-gender schools, and co-educational schools.

It is further noted that since the factor of curriculum was not considered in this research study, it may be worthy for the teachers and administrators, curriculum developers and future researchers of the school design, to experiment with gender-based settings; as applicable to or accommodative of specific curricula. Since, male students may respond better to a certain set of teaching/learning environments than do the female students.

The results of this study are limited to this descriptive-comparative research-design reporting; it only mentioned the differences, and not what causes these differences. It is thus, recommended for further researchers to conduct a similar study that has access to raw data and to create more data points. Researchers, school administrators, teachers, and curriculum designers are advised to use this research and its conclusions as a narrow set of parameters.

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