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**The Comparison Between Students of Coeducational
Schools and Single-Sex School in Malaysia**

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THE COMPARISON BETWEEN STUDENTS OF COEDUCATIONAL SCHOOLS AND SINGLE-SEX SCHOOL IN MALAYSIA

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Abstract

The study aimed to determine which type of school appeared to be better because it has been a concern for parents when choosing schools for their children. The study also compared pupils' socio-emotional, peer victimization, extracurricular achievements, academic performance, and career aspirations in three types of schools in Kuantan, Pahang. Data from three different schools were collected using a single cross-sectional with probability sampling design and analyzed using R programming. The result showed that pupils in girls' schools performed better in mathematics and science than in boys' and coeducational schools. Furthermore, pupils in boys' schools were more interested in extracurricular activities than in coeducational schools. However, it was found that pupils in girls' schools were more inspired to determine their future careers as compared to pupils in boys' schools. Therefore, the study concluded that single-sex school was better regarding academic performance, career aspiration, peer victimization, and extracurricular activities. The study results suggest that students or parents choose the best path or school for their future endeavors.

Keywords: Co-Educational; Single-Sex; Career Aspiration; Science; Mathematics.



A. Introduction

Nowadays, public schools have received much criticism regarding their performance and academic success. Moreover, bullying and peer victimization are major social problems affecting adolescents and children, especially in school. Central factors such as participating in extracurricular activities and providing clear aspirations for their future career dreams or ambitions as early as possible are very beneficial when nurturing the future generation. Therefore, the parents or guardian must often choose the right school as the decision can mentally and physically affect the child's growth. It includes a decision to send them to a coeducation or single-sex school.

Previous studies have found no significant differences in achievement among pupils in single-sex schools and coeducational schools (Slota, 2012). Based on the study, the school environment affected the differences between single-sex and coeducational schools. Although teachers in every school used the same textbooks and learning materials, they had different ways of teaching and level of experience. However, another study by Eisenkopf et al. (2015) showed that girls from a single-sex school environment performed better than pupils in a coeducational school environment. The environment in girls' schools acts as a catalyst in the form of challenge and encouragement for the pupils to excel and achieve a high level of academic performance.

Moreover, a study by Dustmann et al. (2018) mentioned that pupils in single-sex schools outperformed pupils in coeducational schools, which could be due to unobservable school-level covariates. Single-sex school is said to perform significantly better than other public schools (Dahlia et al., 2021). However, the enrolment of boys and girls in coeducational schools is still high as it is driven by the learning environment that influences pupils' academic success (Forgasz & Leder, 2020; Booth et al., 2018; Ismail, 2023).

According to Jacobs et al. (1991), aspirations are not fixed but evolve as the experiences of young individuals in educational and employment settings buffet them. Signer & Saldana (2001) said that coeducational school pupils have aspirations for their future careers. Thus, they must be strong in



core educational subjects such as English, mathematics, science, and history to obtain a high social status in their career. Moreover, according to Signer & Saldana (2001), when pupils have a higher level of elective courses in high school, it will enhance their thinking and creativity skills, significantly affecting their career choices. In another context, concerns have arisen in single-sex schools and serve as a submission (Kenway & Willis, 1986), which means that the girls do not have a chance to excel in school because they cannot compete with the boys like in coeducational school. This skill will somehow be practiced in the future corporate world.

In another study by Park et al. (2018), boys from single-sex schools had greater career aspirations when they attended college than those in coeducational schools. Some past research findings stated that pupils in a girl's school had career aspirations that depended on family involvement (Baber & Monaghan, 1988). It means their career aspirations did not depend on them to choose because it was based on the family's preference and desired profession for a better adolescent future. In short, adolescent career aspirations are much of a concern because they will determine their future ambitions.

It was estimated that most adolescents were involved in some form of peer victimization (Juvonen et al., 2000). The high male and female social behavior rates kept increasing. Figures from the Students Discipline Misconduct System of Malaysia's Ministry of Education showed that almost 1,200 bullying cases were reported in 2017 ("Steep Rise in School Bullying Cases", 2017). Based on the findings, male adolescents in boys' schools had a higher potential to experience more verbal and physical attacks than those in coeducational schools. Meanwhile, for female adolescents, it was found that girls' school mitigates engagement in peer victimization (Gee & Cho, 2014). Anim et al. (2019) mentioned that males were likelier to report being victimized than females.

On the other hand, there were more cases in coeducational schools regarding bullying or peer victimization because the boys could target the girls or between themselves (Killeya-Jones et al., 2007). Furthermore, the



study aimed to understand and differentiate the impact of peer victimization on single-sex and coeducational schools. Both types of schools have their cases. Besides concerning parents choosing a better school for their children, a deeper understanding of which school has more potential for peer victimization could affect the school environment.

Participation in extracurricular activities is a concept of forecasting teenage attitudes, and it has surfaced as a crucial aspect of teenage development. It might be a fruitful way to preserve future behaviors. Extracurriculars can be defined as activities that are done outside the class. The extracurricular activities include sports, arts, clubs, and other pursuits. Several studies showed that the extracurricular and different outcomes differed by gender. Tozer (2013) said that “we cannot simply conclude which school is better between single-sex school and coeducational school in terms of achievements because all types of school have their own pupils’ expertise and personality. For example, in coeducational schools, pupils can train and compete with each other as in swimming and hockey. Dissociated sports like netball and gymnastics might be better in single-sex schools”. Further research should determine an apparent causal effect between all factors discussed.

Therefore, this study aims to determine which type of school is better because it has been a concerning problem for parents when choosing a school for their children. Also, the study determines if single-sex and coeducational schools are associated with and allow comparison of socio-emotional, peer victimization, extracurricular involvement, pupils’ academic performance, and career aspirations for pupils in three different types of schools in Kuantan, Pahang.

B. Method

1. Population

Today, public schools are divided into three types: girls’, boys’, and coeducational. There are 20 schools in Kuantan, Pahang, but only three were chosen for the study. The targeted population was amongst the



secondary school pupils from Sekolah Menengah Kebangsaan (SMK) Air Putih, Methodist Girls' School (MGS), and Sekolah Menengah Kebangsaan (SMK) St. Thomas, located in Kuantan, Pahang. Methodist Girls School and SMK St. Thomas are the only single-sex schools in Kuantan. Then a coeducational school was randomly selected: Sekolah Menengah Kebangsaan (SMK) Air Putih. The total number of pupils used for the study was 977.

Table 1 shows each school's total population of upper-secondary pupils and the sample size calculated for data collection.

Table 1. Total Population and sampel size for schools in this study

No.	School	Population		Sample	
		Form 4	Form 5	Form 4	Form 5
1.	SMK Air Putih	363	104	104	95
2.	SMK (P) Methodist	100	27	27	29
3.	SMK ST. Thomas	34	10	10	16
	Total	497	141	141	140

2. Sample

The research design used was cross-sectional design. Based on Table 1, the total population of upper-secondary pupils from all schools was 977. Therefore, the most suitable sample size used for the pupils was 278, concerning the sample size suggested by Krejcie and Morgan (1970).

This research study used stratified sampling to choose respondents proportionately from the populations. Therefore, 278 respondents were selected from 977 pupils in SMK Air Putih, SMK (P) Methodist, and SMK ST. Thomas. Based on the sample size, only ten pupils were selected from each class of every form. On the other hand, cluster sampling was also applied in this study, but due to time constraints, only SMK Air Putih had a high number of respondents and the schedule of each class.

The respondent's percentage involved in this study were 58.5% female and 41.5% male pupils. The results obtained from respondents' races in coeducational schools were 59.66% (Chinese), 2.27% (Indians), 3.41% (Malays), and the remaining 1.7% were indigenous people. For



pupils in boys' schools, 0.57% were Chinese, and 9.09% were Malays. For pupils in girls' schools, 4.55% were Chinese, 3.41% were Indians, and 15.34% were Malays.

The demographic analysis of respondents based on parental marital status in coeducational schools indicated that 89.83% were married, 4.24% were divorced, 3.39% were separated, and 2.54% were widowers. The parental marital status in girls' schools showed that 87.80% were married, 7.32% were divorced, and 4.88% were widowers. Meanwhile, in the boy's school, parental marital status showed that 70.59% were married, 23.53% were divorced, and the other 5.88% were separated.

3. Instrument

The questionnaire was designed in bilingual, which were English and Bahasa Melayu. Data collected from Form 4 and 5 classes to participate in this study were based on the needed sample size. Firstly, respondents were briefly explained the study objectives and given time to answer the questionnaires. The questionnaire was divided into three sections, which were Section A, Section B, and Section C. Section A was a demographic section, whereby respondents were asked about their backgrounds, such as gender, grade point average, parental marital status, PT3 (*Penilaian Tahap 3* or public examination for Form 3) results and more. There were also questions regarding peer victimization and extracurricular activities.

In section B there were four subsections based on academic performance, career aspirations, peer victimization, and extracurricular variables. Meanwhile, Section C was specifically for socio emotional variables, and it was also divided into six subsections. The respondents were asked about the appraisal of other emotions, appraisal of their own emotions, regulation, social skill, utilization of emotions, and optimism. The pupils can choose their answers based on their opinions on the questions, and answers were indicated by a scale of 1 to 5, whereby one was coded as "strongly disagree", 2 was "disagree", 3 was "neutral", 4 was "agree", and five was "strongly agree". All questions for Section A and Section B were self-developed. All analyses were done by using R programming.



C. Result and Discussion

The results were compared between single-sex schools and coeducational schools. For academic performance, only two subjects were compared in this study: science and mathematics. The marks obtained by pupils were classified as good (more than 50) or bad (less than 50), with total scores of 100.

1. Result

The number of questionnaires that were distributed for this research was 282. The number of responses was 176, so the response rate was 62.19%. To test the reliability of the measures on variables, Cronbach's alpha coefficient was used. Generally, the value of Cronbach's alpha needed to be greater or equal to 0.8 to ensure the questionnaire was reliable. The results were analyzed according to the type of schools. This study involved three types: coeducational (mixed), boys and girls schools. Table 2 displays Cronbach's alpha values for each questionnaire section.

Table 2. Cronbach's alpha values according to school

No.	Items	Cronbach's alpha			
		Overall	Co-ed	Boys	Girls
1.	Section A: Academic Performance	0.816	0.788	0.735	0.813
2.	Section B: Career Aspiration	0.832	0.810	0.868	0.796
3.	Section C: Peer Victimization	0.811	0.812	0.753	0.809
4.	Section D: Extracurricular	0.775	0.776	0.654	0.750

a. Peer victimization

Regarding the respondents' safety in school, the coeducational schools showed that 4.24% never felt safe, 38.14% were sometimes safe, and 57.63% were always safe in school. The pupils in boys' schools showed that 41.18% were sometimes safe and 58.82% were always safe. Besides, the girl's school showed that 36.59% were sometimes safe and 63.41% were always safe in school. Based on the respondents' safety in school, those learning in girls' schools felt safer than those in coeducational and boys' schools. The total mean score for coeducational schools was 2.18, and for



boys' and girls' schools were 2.22 and 1.83, respectively, for peer victimization. It showed that most pupils disagreed that they were involved in any peer victimization activity.

b. Socio-emotional

Regarding respondents' extracurricular activities for coeducational schools, 49.15% of pupils were involved in the competition, while 50.85% were not. Meanwhile, 58.82% of pupils in boys' schools were involved in the competition, while 41.18% were not. In girls' schools, 68.29% of pupils participated in the competition, while 31.71% were not. Therefore, the percentage of involvement in competition in single-sex schools was higher than in coeducational schools.

c. Extracurricular involvement

Respondents who participated in extracurricular activities were asked to identify their involvement in four types of activity: sports, debate, arts, and others. For coeducational schools, 52.24% of respondents joined sports, 7.63% joined debates, 12.71% took arts, and 21.12% were involved in other extracurricular activities. Next, regarding boys' schools, respondents who joined sports, debates, and other activities were 76.47%, 11.76%, and 11.76%, respectively. Lastly, in girls' schools, respondents who joined sports were 53.66%, 9.76% joined debates, 2.44% took arts, and 34.15% were involved in other extracurricular activities. Most school respondents were interested in sports rather than debates, arts, and other activities.

d. Students' Academic Performance

Based on Figure 1, 63.56% of respondents from coeducational schools had good performance in mathematics, while the other 36.44% had terrible performance. Next, 17.65% of respondents from boys' schools had good performance in mathematics, while other 82.35% had a bad performance. Lastly, 68.29% of respondents from girls' schools did well in mathematics, while the other 31.71% did poorly. In conclusion, pupils in



girls' schools performed better in mathematics than in coeducational and boys' schools. Chi-squared test between types of school and performance in mathematics showed that the Pearson Chi-Square (14.528) was significant with a p -value of 0.001, which was less than the significant value (0.05). Therefore, the null hypothesis was rejected, which means there was a relation between the types of schools and performance in mathematics.

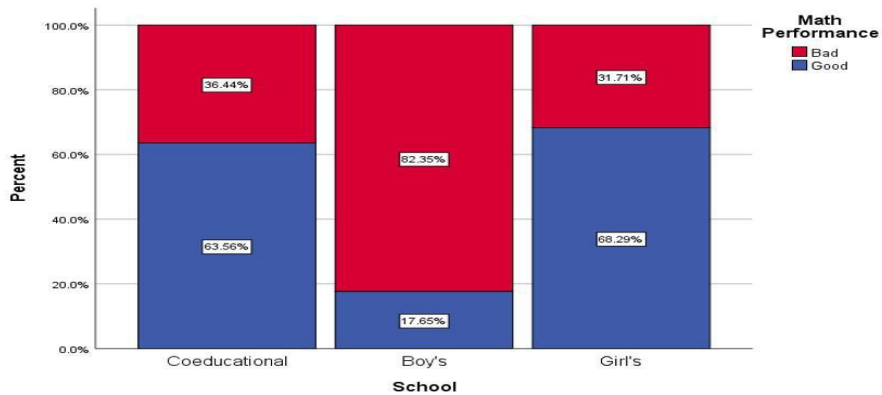


Figure 1. Mathematics performance according to the type of schools

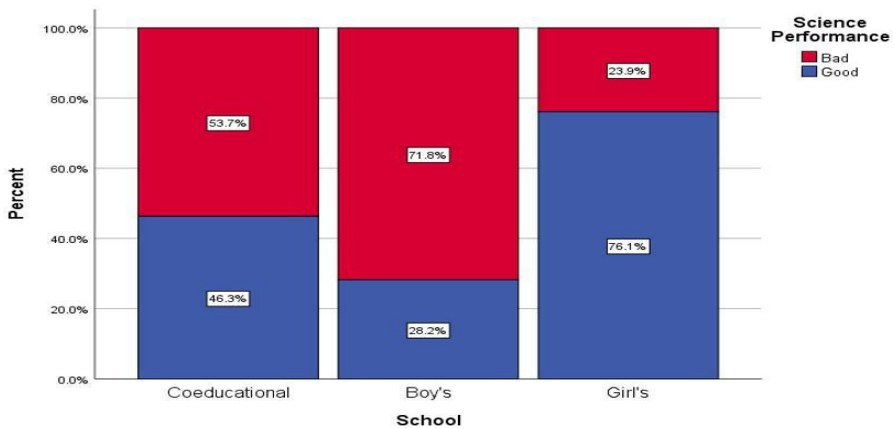


Figure 2. Science performance according to the type of schools

From Figure 2, 46.3% of respondents from coeducational schools had good performance in science, while the other 53.7% had terrible performance. Next, 28.2% of respondents from boys' schools had good performance in science, while the other 71.8% had a bad performance.



Lastly, 76.1% of respondents from girls' schools did well in science, while the other 23.9% did poorly. In conclusion, pupils in girls' schools performed better in science than in coeducational and boys' schools. Chi-squared test between types of school and science performance showed that the Pearson Chi-Square (11.123) was significant with a *p*-value of 0.004, which was less than the significant value (0.05). Therefore, the null hypothesis was rejected, meaning there was a relation between the types of schools and performance in science.

e. Career Aspirations

Table 3. Comparisons of means cores for career aspirations between schools

No.	Career Aspirations	Co-ed	Boys	Girls
1.	I have specific career aspirations.	3.53	4.05	3.94
2.	I know what career I want to pursue in the future.	3.53	3.78	4.41
3.	I will follow on what the future will offer me.	3.11	3.12	3.00
4.	I have a role model to inspire me to determine my career goals.	3.42	3.88	3.59
5.	I am planning to follow my family's choice of future occupations.	2.56	2.66	3.12
6.	I know my communication skill is important for my career.	4.10	4.34	4.06
7.	I am aware about my career planning.	3.71	3.95	3.76
8.	I am aware that there will be challenges in choosing the right career.	4.03	4.54	4.65
9.	I am aware of the background information on my interest career.	3.54	3.90	3.71
10.	I am aware of the skills that I have to develop to achieve my career goals.	3.76	4.39	4.29
11.	I am aware of my abilities and strength.	3.68	3.98	4.12
12.	I am aware that there are many possible careers that I have to find out.	3.79	4.29	4.41
13.	I am aware that I have to improve my weaknesses.	4.00	4.54	4.53
14.	I know how to solve my own problem	3.46	3.54	3.71
	Total.	3.59	3.93	3.95

Based on the mean scores for career aspiration in Table 3, there were differences between types of schools. Single-sex schools had better



results, in which the mean score for Methodist Girls' School was 3.93 and SMK St. Thomas was 3.95 compared to coeducational schools. With that, both single-sex schools were slightly more aware of career aspirations.

Based on the first question clearly showed that pupils in girls' schools had determination for their future careers. However, pupils in boys' schools knew what career they wanted to pursue. For the third question, the mean score for the three schools was more or less the same, whereby 3.11 for the coeducational school, 3.00 for the boys' school, and 3.12 for the girls' school. Nonetheless, pupils in girls' schools showed the highest result in following what the future would offer them and were not care less about what specific career they would pursue. Besides, pupils in girls' schools had higher mean scores for having their role model to determine their career goals. On the other hand, pupils in boys' schools showed that they had a higher possibility of following their family's choice of future career occupations.

Pupils in girls' school knew that communication skill was important to apply in their career choice, and they were aware of their career planning, which was to study for a certain level of education to achieve their goals. For the next question, pupils in boys' schools were more alert about challenges in choosing the right career that suits a person's capability. For the 9th question, "I am aware of the background information of my interest career", the result showed that pupils in girls' schools were the highest (3.90). As for the next question, pupils in boys' and girls' schools knew the skills they must develop to achieve their career goals. Nonetheless, pupils in girls' schools had a higher mean score value, which was 4.39, as compared to pupils in boys' schools (4.29).

Pupils in boys' schools were more aware of their abilities and strength, which showed from the mean score of 4.12. Next, pupils in boys' schools showed the highest mean score for the question, "I am aware that there are many possible careers that I have to find out", which was 4.41. Other than that, pupils in boys and girls schools' were aware of their



weaknesses and must improve for their future careers. For this question, pupils in boys' schools showed 4.53, and pupils in girls' schools showed 4.54, almost the same. For the last question, pupils in boys' schools tended to have their own solutions to solve their problems rather than pupils in girls' schools and coeducational schools.

Spearman's correlation coefficient value obtained for comparison amongst the schools with their opinions towards career aspirations was 0.304, with a significant value of 0.000, which was less than the *p*-value (0.05). Therefore, there was a weak positive relation between career aspirations and types of school. The pupils in different types of schools have different aspirations to determine and plan their careers well.

2. Discussion

A previous study by Gee and Cho (2014) found that single-sex schools had more bullying cases than coeducational schools due to the division of gender. However, based on this study, it can be concluded that peer victimization cases were not based on the types of schools, whereby low mean scores were recorded with only a slight difference in the value obtained across the schools. Further study on bullying is needed to check whether gender segregation influences bullying. Most pupils in single-sex schools were involved in extracurricular activities, but in coeducational schools, most pupils were not involved in extracurricular activities. It was found that pupils in boys' schools were more involved in extracurricular activities. This means pupils in single-sex schools were prone to participate in extracurricular activities compared to those in coeducational schools. It was also reported by Law and Sikora (2020) that a few girls who graduated from single-sex schools did not major in physical sciences at the university, with rates higher than their peers from coeducational schools.

The academic performances covered in this study were mathematics and science performance. It was found that pupils in girls' schools performed better in mathematics than in coeducational and boys' schools. Meanwhile, in science subjects, it was also proven that pupils in girls' schools performed

better in science than in coeducational schools and boys' schools. The same results were also obtained by Eisenkopfet al (2015), Franklin and Rangel (2022), Jackson (2012), and Lee and Lockheed (1990).

The results also suggested a relationship between career aspirations and types of schools. It showed that pupils in different types of schools had their career aspirations for the future. It may be affected by their academic performance because it was proven that pupils in girls' schools had better career aspirations. A previous finding by Stevens et al. (1992) and Watson et al. (2002) found that pupils in girls' schools were more inspired to determine their future careers than pupils in boys' schools. Also, the mean scores clearly showed that pupils in girls' schools had determination for their future careers. Based on the mean scores, pupils in single-sex schools were better than those in coeducational schools, meaning they were more determined and concerned about their future careers. As discussed by Hubbard and Datnow (2005), for some pupils, the given single-sex setting was just another opportunity for a successful academic life, while Hughes (2006) stressed the different learning styles between gender; hence, different teaching strategies that cater to the gap might influence the pupils' improvement.

D. Conclusion

Different environments do matter in influencing everyone's progression. What matters is whether the school is suitable for that individual. This study showed that based on respondents towards their safety while in school, those who learn in girls' schools felt safer than those in coeducational and boys' schools. The percentage of pupils' involvement in competition in single-sex schools was higher than in coeducational schools. Amongst those involved in extracurricular activities, regardless of the type of school, they were interested in sports rather than debates, arts, and other activities. Moreover, pupils in coeducational and girls' schools had higher academic achievements than in boys' schools. Conversely,



gender-specific school is good for developing a career aspiration.

When choosing a thriving school for specific materialistic goals, it must instead fit the individual's personality too. Academics are as essential as career aspiration development and emotional needs. Therefore, it is advisable to add more psychological factors for future study. In addition, the future researcher can add more variables, such as school facilities, pupils' social skills, appraisal of emotions, and student regulations.

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