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The Relationship Between Family Socioeconomic Status and Students' E-Learning Experiences

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Abstract

The COVID-19 pandemic has had a significant impact on learning processes worldwide. It has been determined that the family's socioeconomic status (SES) is an important factor affecting the learning processes at this time. Students from higher-SES backgrounds usually have more access to educational resources and opportunities. On the other hand, students from lower-SES families are more likely to face problems that can get in the way of their learning. This study examines the effect of parents' educational background on students' mathematical achievement, the relationship between parents' financial status and students' e-learning experiences, and the influence of parents' financial status on a student's mathematics achievement. For this quantitative study, 100 Form 4 students from SMK Dato Onn were randomly selected to answer 15 survey questions. To achieve the objectives of this study, descriptive and inferential analyses were carried out using the statistical software SPSS. The result showed that uneducated parents significantly impact their children's education, particularly in mathematics. The relationship between parents' financial status and students' e-learning experiences is shown to be significant. In addition, there is no influence of parents' financial status on student achievement in mathematics. Students' academic achievement in mathematics may be influenced by their parent's financial status, but this is not the only factor. Many factors beyond financial resources can impact student achievement, including school quality, teacher experience, and individual student characteristics.

Keywords Socioeconomic status, E-Learning experiences, Mathematics achievement

INTRODUCTION

Education is a crucial factor in individual and societal development, and in the digital era, e-learning has gained significant prominence. The adoption of technology and online platforms has opened new opportunities for flexible and accessible education. However, several factors, including socioeconomic status, can affect how effective e-learning experiences are [1]. Socioeconomic status encompasses income, occupation, and educational level, and it often correlates with disparities in resources and opportunities. Understanding the relationship between family socioeconomic status and students' e-learning experiences is essential for addressing educational inequalities and developing effective interventions [2].

In Malaysia, the implementation of e-learning during the COVID-19 pandemic has brought this issue to the forefront. While the government strives to ensure access to e-learning for all students, disparities based on socioeconomic status persist [3]. Students from families with higher socioeconomic status generally have better access to technology devices, reliable internet connectivity, and supportive learning environments [2], [4]. On the other hand, students from lower socioeconomic backgrounds may face

challenges related to limited resources, including inadequate access to technology and internet connectivity [5]. These disparities can significantly impact students' engagement, motivation, and overall experiences with e-learning. Investigating the relationship between family socioeconomic status and students' e-learning experiences in Malaysia is crucial for developing targeted interventions and policies to address these disparities and ensure equitable access to quality education [1],[2],[5]. By identifying the specific challenges faced by students from different socioeconomic backgrounds, effective strategies can be devised to mitigate the impact of inequality and enhance educational opportunities for all students [3]. Thus, the research problem to be addressed in this study is understanding the relationship between family socioeconomic status and students' e-learning experiences in Malaysia, to identify ways to reduce educational disparities and ensure equitable access to quality education. Understanding how family socioeconomic status affects students' e-learning experiences is crucial for devising strategies to mitigate the impact of inequality and enhance educational opportunities for all students.

METHODOLOGY

The study employed a quantitative research design, utilizing methods such as correlation analysis, descriptive tests, and regression analysis to examine the relationship between students' mathematics achievement and family SES during the COVID-19 pandemic. A cross-sectional survey was conducted among Form 4 students in SMK Dato' Onn, Batu Pahat, Johor, using a physical questionnaire adapted from previous studies [14], [15] distributed to the respondents. The population consisted of secondary school students in the selected school, with a target of at least 100 respondents. Simple random sampling was employed to ensure fairness and unbiased selection. The questionnaire utilizes a Likert scale for responses and was divided into five sections, covering demographic information, parents' income, educational background, parents' financial status, and students' experiences during online classes. The instrument's reliability and validity have been evaluated by an experienced lecturer from Pusat Asasi UiTM Cawangan Selangor, Kampus Dengkil. A pilot study was conducted with 10 respondents before distributing the questionnaires. The pilot study aimed to ensure that the questionnaire reached the intended recipients and was distributed in person to gather responses addressing the research problems. Each item in the research instrument was analyzed using Cronbach's alpha in SPSS. Cronbach's alpha is a measure of internal consistency used to assess how closely related a set of items is as a group [16]. By conducting Cronbach's alpha for each item, the reliability of the scale could be measured and used as evidence that the instrument was consistent. Results within the acceptable range of Cronbach's alpha of 0.70 indicate acceptability, while those values over 0.80 are considered good.

RESULTS AND DISCUSSION

Validity and Reliability of Instrument

Table 1 displays the Cronbach's alpha coefficient for a reliability analysis of a 14-item questionnaire. Based on responses from 100 Form 4 students, the Cronbach's alpha value obtained is 0.719, indicating good internal consistency among the items. A Cronbach’s alpha value above 0.70 is typically considered acceptable, suggesting reliability in the measurement instrument. Therefore, the questionnaire demonstrates satisfactory reliability for assessing the intended constructs among the target population.

Table 1. Cronbach's Alpha of The Reliability Test

Cronbach’s Alpha	N of item
0.719	14

Demographic Profiles

Table 2 displays the gender distribution of the 100 survey respondents from SMK Dato' Onn, Batu Pahat. 31% (N = 31) of the respondents are male students, whereas 69% (N = 69) of the respondents are female students.

Table 2. The demographic of respondents by gender (N=100)

Gender	Frequency	Percent
Male	31	31
Female	69	69
Total	100	100.0

Table 3 displays the distribution of students by household income. According to the table, 71% (N=71) of respondents came from households with an annual income of less than RM3000, while 23% (N=23) came from households with an annual income of between RM3000 and RM5999. The remaining 6% (N=6) of respondents earn more than RM 6000.

Table 3. The demographic of respondents by family income (N=100)

Household Income	Frequency	Percent
Below RM999	9	9
RM1000 – RM1999	51	51
RM2000 – RM2999	11	11
RM3000 – RM3999	11	11
RM4000 – RM4999	4	4
RM5000 – RM5999	8	8
Above RM6000	6	6
Total	100	100.0

The distribution of student achievement scores in their Form 3 mathematics exam is shown in Figure 1. Of the 100 students, 47% received a grade of "G," indicating failure, while 25% received an "E," for passing. Most students (14%) received a "D," followed by "C" and "B" grades (each at 7%). None of the students received an “A”.

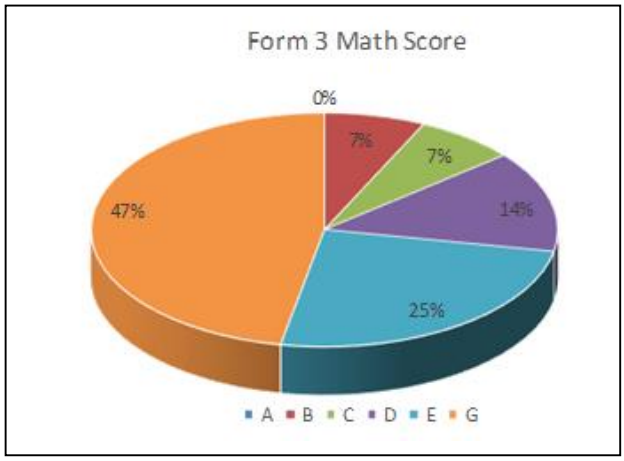

Figure 1. Form 3 Math Score

The educational influence of the parents among the upper secondary students in SMK Dato' Onn.

To determine the Parents' educational influence, Table 4 presents the frequency data for three questions related to their education. The mean scores for these items range from 2.9 to 4.35. The item with the highest mean score is "My parents are not educated, and this is affecting me mathematically" (M = 4.35), indicating that students perceive their parents' lack of education as having an impact on their mathematical abilities. On the other hand, the second item, "My parents organized private lessons for me, which helped to improve my performance in mathematics," has the lowest mean score (M = 2.91), suggesting that fewer students benefited from private lessons organized by their parents.

Table 4. Mean and standard deviation of Parents' educational influence

No.	Items	Mean	Std. Deviation
1	My parents are not educated, and this is affecting me Mathematically.	4.3500	0.93609
2	My parents organized private lessons for me which helped to improve my performance in Mathematics.	2.9100	1.32646
3	My parents place a high value on education and their encouragement has helped me in mathematics.	3.7700	1.06225

These findings provide insights into the educational backgrounds of the parents of upper secondary students at SMK Dato' Onn. The high mean score for the item indicating the parents' lack of education suggests that this is perceived as an influential factor affecting students' mathematical performance. Conversely, the lower mean score for the item related to parents organizing private lessons indicates a lesser impact on students' performance. The overall mean score and the range of scores reflect the diversity in the educational backgrounds of the parents within the sample.

The relationship between parents' financial status and the online learning experiences of upper secondary students in SMK Dato' Onn.

Figure 2 displays a scatter plot illustrating the relationship between parents' financial status and students' experiences during online classes or e-learning among the upper secondary students in SMK Dato' Onn. The value of R^2 is 0.117, which indicates a weak relationship, accounting for only 11.7% of the variation in students' experiences.

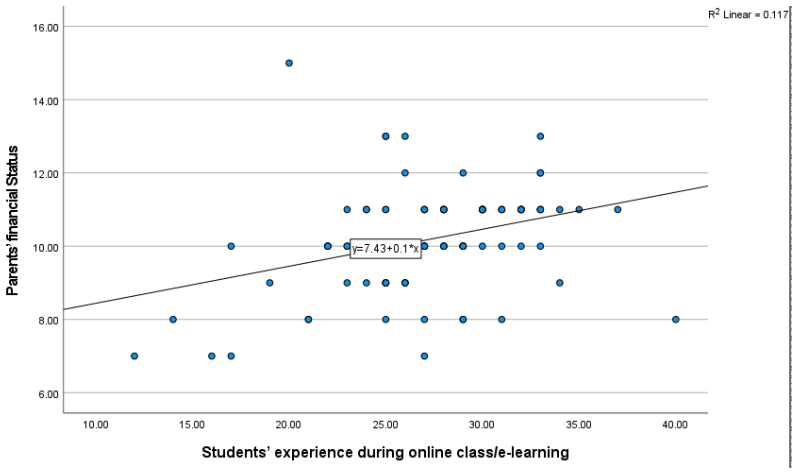

Figure 2. Scatter Graph of parents' financial status and students' online learning experiences

To further investigate the relationship, a Pearson correlation test was conducted. The result is shown in Table 5. The following hypotheses are formulated for this purpose:

H_0 : There is no relationship between parents' financial status and students' online learning experiences.
H_1 : There is a relationship between parents' financial status and students' online learning experiences.

Table 5. Pearson's correlation coefficient to test the relationship between two variables

Correlations			
		Parents' financial status	Students' e-learning experiences
Parents' financial status	Pearson Correlation Sig. (2-tailed) N	1 100	0.343*** <0.001 100
Students' e-learning experiences	Pearson Correlation Sig. (2-tailed) N	0.343*** <0.001 100	1 100

**. Correlation is significant at the 0.01 level (2-tailed).

The test revealed a correlation coefficient (r) of 0.343, and a p-value of 0.001, which is smaller than the conventional threshold of 0.05. Consequently, the null hypothesis was rejected. This indicates a significant relationship between parents' financial status and students' online learning experiences among upper secondary students in SMK Dato' Onn.

The findings suggest that there is a discernible association between parents' financial status and students' experiences during online classes or e-learning. Although the relationship is statistically significant, it should be noted that the strength of the relationship is relatively weak, as indicated by the modest value of R^2. These results emphasize the influence of parents' financial circumstances on students' online learning experiences, highlighting the need for further exploration and support in addressing the potential impact of financial factors on educational outcomes.

The influence of parents' financial status as a predictor toward student achievement scores in mathematics among upper secondary students in SMK Dato' Onn.

This section examines the relationship between students' achievement scores in mathematics (represented by mean academic grades) and parents' financial status using Simple linear regression. The purpose was to determine if parents' financial status has any influence on the student's achievement scores. The hypotheses for this analysis are:

H_0 : There is no influence of parents' financial status on student achievement scores in mathematics.
H_1 : There is an influence of parents' financial status on student achievement scores in mathematics.

Table 6. Regression Coefficients of Parents' Financial Status on Student's Achievement Scores

		Unstandardized Coefficient		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(constant)	10.158	1.055		9.624	<0.001
	Parents' financial status	-0.123	0.103	-0.120	-1.193	0.236
	R^2	0.014				

Table 7. Analysis of Variance (ANOVA) for Simple Linear Regression Model

Source	Sum of Squares	df	Mean Square	F	Sig
Regression	2.866	1	2.866	1.423	0.236[b]
Residual	197.324	98	2.014		
Total	200.190	99			

a. Dependent variable: student's achievement scores in mathematics
b. Predictors: parents' financial status

The regression analysis result in Table 6 indicates a weak relationship between parents' financial status and students' achievement scores in mathematics, as reflected by the low R-squared value of 0.014. This suggests that parents' financial situation can only account for a small portion (1.4%) of the variation in students' achievement scores.

Furthermore, Table 7 presents the ANOVA summary, outlining the statistical significance of the regression model and the relationship between Parents' Financial Status and Student Achievement Scores in Mathematics. The F-statistic of 1.42 with a corresponding p-value of 0.236 which exceeds the predetermined significance level of 0.05 further supports the lack of significance in the relationship. Therefore, it is unlikely that parents' financial status significantly influences students' achievement scores in mathematics based on the given data. These results suggest that other factors beyond financial status are likely to have a more significant impact on students' mathematics achievement scores.

DISCUSSION ON FINDINGS

It is widely acknowledged that a parent's socioeconomic background can significantly impact a student's academic performance in school. A student's academic success is directly and indirectly influenced by the level of education their parents have attained [17]. Parents with a strong academic background are more likely to secure good careers and achieve higher incomes through hard work and dedication, not just in their studies but also in planning for their future. Consequently, these parents can provide better facilities for their children's education. However, it is important to note that not all uneducated parents neglect their children's education. Many successful individuals today have uneducated parents who made significant efforts to provide the best education possible for their children. Ultimately, the level of parental responsibility for their children's education plays a crucial role in determining academic outcomes.

RQ 1: What is the educational influence of the parents of the upper secondary students in SMK Dato' Onn?

The discussion focuses on parents' educational background among the upper secondary students at SMK Dato' Onn. The highest mean among the three items is found in the statement "My parents are not educated, and this is affecting me Mathematically," indicating that these students agree that having uneducated parents has an impact on their academic performance, particularly in Mathematics. This finding aligns with previous research that highlighted the influence of parental education, occupation, and home facilities on students' achievement [18]. Additionally, studies have shown that children of highly educated parents tend to perform better academically compared to those of less educated parents [19].

The researcher suggests that parents with a strong academic background are more likely to secure good careers and consequently have better income prospects due to their hard work in both their studies and planning. Consequently, these parents can provide better facilities for their children. However, it is important to note that not all uneducated parents neglect their children's education. Many successful individuals today have uneducated parents who made significant efforts to provide the best education for their children. Ultimately, the responsibility lies with parents and their willingness to prioritize their children's education.

RQ 2: What is the relationship between parents' financial status and students' experiences during online classes or e-learning?

The analysis revealed a significant difference between the two variables, despite the weak relationship shown in the scatter graph. This weak relationship may be attributed to the use of mixed questionnaires from different sources in the study.

The results show that students' experiences in online classes or e-learning depend on their parent's financial situation. This finding aligns with previous research, which has shown a strong link between fathers' careers and education, family finances, available resources at home, and children's academic achievement. Low-income families face significant challenges in accessing online learning. The lack of access has resulted in a "lost year" for many students, particularly in Mathematics. Students from higher socioeconomic status (SES) backgrounds have greater resources to support their online learning, which motivates them to complete their mathematics homework and participate in examinations. In contrast, low-SES students often face limitations, such as sharing gadgets with other family members.

RQ 3: Is there any influence of parents' financial status as a predictor of students' achievement scores in mathematics among upper secondary students in SMK Dato' Onn?

The study aimed to determine the influence of parents' financial status as a predictor of students' achievement scores in mathematics among upper secondary students in SMK Dato' Onn. However, the regression analysis revealed no significant influence of parents' financial status on students' achievement scores in mathematics. This finding aligns with previous research conducted by Yee [20], which also found no significant correlation between academic achievement and parental wealth. Chen et al. [21] further support these findings by stating that socioeconomic status has little to no impact on academic achievement. Contrary to these findings, Idris et al. [19] found that students from low-income families may face difficulties focusing during class and that the home environment and educational facilities play a significant role in academic success. On average, students with higher socioeconomic status tend to perform better academically compared to those with lower socioeconomic status, as noted by Bhat et al. [18].

The study found that certain students from high socioeconomic backgrounds struggled academically, and parental neglect due to career preoccupation emerged as a key factor contributing to their poor performance in mathematics, resulting in underachievement compared to their peers. This underscores the potential significance of parental educational influence over financial status. Despite the absence of a direct correlation between parents' financial status and students' mathematics achievement scores, the study recognizes the critical role of factors like the home environment, access to educational resources, and parental engagement in indirectly shaping academic success.

CONCLUSION

This study highlights the negative impact of parental education levels on students' academic performance, particularly in mathematics, and highlights disparities in online learning experiences based on parental financial status. Despite these challenges, the regression analysis indicates that parental financial status does not significantly predict students' mathematics achievement scores, consistent with prior research. To address these issues, educational institutions should devise strategies to ensure equitable access to online learning resources for students across socioeconomic backgrounds. Additionally, it is imperative to equip teachers with the necessary skills and resources to effectively adapt to online teaching methods, fostering collaboration between educators and parents to support students' academic success.Recommendations for future studies include employing comprehensive and standardized questionnaires, conducting research across multiple schools to capture diverse data, and integrating qualitative methods featuring open-ended questions to supplement quantitative approaches. This holistic approach will provide deeper insights into respondents' perspectives on socioeconomic factors and their experiences with online learning, thereby enhancing the accuracy and applicability of future research findings in this field.

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