

# Discovering Correlation Purpose for Socioeconomic and Academic Achievement: Case Study Time Length

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## **Abstract**

The majority of poverty experience stagnation in academic performance. And accordingly, this is due to the lack of resources and accessibility of quality education. However, the very status of poverty puts children in a situation where those bases are difficult to secure. Though this tough situation caused by economic status likewise loses the opportunities for students to ensure their studying time due to coerced child labor. Add to this situation, the current COVID-19 causes sudden changes to strange habits, which have been designated as a headwind regarding the education field recently. Hence, even though it has been proven that the presence of correlation, the situation today is not as exact as before. Thus, this paper will examine to what extent each individual's socioeconomic status influences high school student's academic performance during post-COVID in order to discover a way to equalize the opportunities to achieve higher academic achievement for children's further life.

It was concluded that higher socioeconomic status would be more likely to receive higher academic achievement, but the reason for that is not because they have more time to study but some other aspects.

**Keywords:** Economic Advantage, Economic Disadvantage, Economic Inequality, Parental Socio-Economic Status, National Poverty Line, Income Distribution, Socioeconomic

## **Introduction**

Asian Financial Crisis (AFC) was an economic crisis that happened in 1997. It was one of the most significant economic blows Indonesia experienced in its history, ultimately leading to Indonesia falling into one of the world's top six wealth inequality countries. During this crisis, Indonesia recorded the fastest decline out of all South-East Asian nations as they lost over 10% of their GDP in a short period of time. However, after the crisis, due to the Indonesian government's energetical devotion to recovering from the catastrophe by implementing a new political system and attain to an agreement with the International Monetary Fund (IMF), Indonesia succeeded in regaining its economic system by the following year. Though the wound they received from the crisis did not heal, like their financial system, poverty, and political instability, continue to prevent Indonesia from acquiring economic equality. As for 2022, they still ranked 43rd out of 169 countries on World Inequality Ranking. This presence of inequality is also illustrated by the member of the Department of Islamic Economy, Alfath Shifa Ghifara, Akhmad Kusuma Wardhana, Achmad Nur Iman, Sulistya Rusgianto, & Ririn Tri Ratnasar through their research on the elements that could contribute to influencing the equality of income distribution and revealed the existing gap in salary sharing in Indonesia. To prove this, they illustrated a Gini index table of Indonesia, which

shows the distribution of income expressed by a number between 0 to 1, where 0 indicates perfect equality, and 1 represents perfect inequality. According to the table, three out of the five largest metropolitan cities in Indonesia: Jakarta, Surabaya, Medan, Bandung, and Semarang, recorded an increase in the Gini index. Add on to it, all cities indicated a Gini index of over 0.30 (1). This undeniable fact of the presence of economic inequality in Indonesia reinforces the reason for the ranking. Also, this rising phenomenon of the Gini Index anticipated their further divergence of finances as livelihood inequality inclines to present in larger cities.

**Table 1.** Income Inequality in the 5 Largest Metropolitan Cities in Indonesia 2019-2021 (Gini Index)

City	2019	2020	2021
Jakarta	0,39	0,40	0,41
Surabaya	0,37	0,34	0,34
Medan	0,35	0,32	0,40
Bandung	0,44	0,40	0,43
Semarang	0,33	0,33	0,35

However, unfortunately, this gap influences children's lives as well. One of the reasons for it is a mutual relationship between household economic status and the rate of child labor. As clarified in "The Determinants of Child Labor Participation in Indonesia: A Multilevel Approach.", the article analyzes the data from Statistics Indonesia's National Socioeconomic Survey conducted in 2020 to find out the core reason for child labor participation, "73.11% of participation was due to the differences in household socio-economic status" (99). Even though the scale down of the research, statistician in Indonesia, Liza Kurnia Sari, and Lissa Octavia Wardana went further on this aspect and found the number of children and hours who experienced child labor through their collaborative article "Modeling of child labor exploitation status in Indonesia using multilevel binary logistic regression." For that exact purpose, Sari and Wardana analyzed the same survey as the previous article but on Susenas in Indonesia in 2018, which collected about 4,747 child laborers aged 10 to under 18. Based on this survey, "the average working hour of child labor in Indonesia during the week is 45 hours, which even exceeds the normal working hours of adult workers." (7). However, the situation dramatically changed in 2020 due to the arrival of a severe outbreak of COVID-19 which impacted multidimensional sectors, including the child labor field. As for this situation, students face challenges such as "the limitations of communication technology resources, inequality of communication technology in urban and remote areas, limited competence of teaching staff in using communication technology devices, and the relations of students, parents, and instructors who have a different understanding in looking at the COVID-19 pandemic and the policy of learning from home." This combination of three sources ultimately illustrates that the population's adequate income distribution will give children leeway by reducing the loads they need to suffer for stabilized life, saving them much time even in the COVID situation.

Unfortunately, this fact is unavoidable, and it is true that child work inversely influences their education. As a testimony to this, Anne Suryani, and Robertus Raga Djone, associated with the Leading to Improve Future Teachers (LIFT) Foundation, reveal Indonesia's public school teachers' perspective towards child workers from their result of an interview with public school teachers; "Education was highly disrupted by working, as noted by their tiredness, daydreaming, lack of concentration, and withdrawal from school" (57). Not only their mental condition but moreover their less accessibility to better/higher education, creating a cycle of wealth stability over time which displays poverty stability as they are one and indivisible (Wickasono et al.; 10). Time, mental condition, and accessibility. Child labor forfeits multidimensional things for them to focus on academics.

Due to these possible influences proven in past articles, even during this post-COVID period, it is anticipated that private school students will have higher average grades than local schools as, generally, households of students in private schools are secured; as well as the longer they spend studying, their academic performance would improve. As children face time allocation obstacles, addressing this and discovering the core purpose of saving their young aged time during this unfamiliar atmosphere is essential. Hence, this paper will examine to what extent each individual's socioeconomic status influences high school student's academic performance during post-COVID in order to discover a way to equalize the opportunities to achieve higher academic achievement for children's further life.

### **Key Word Definition**

Economic advantage - A person in a financial situation who can live everyday life without inconvenience.

Economic disadvantage - A person in a financial situation who has difficulty living everyday life without inconvenience.

Economic inequality - A gap in income within a society causes an unbalanced opportunity due to the difference in income distribution.

Parental Socio-economic status - Amount of household budget that a family can use for daily life for a household with children.

National poverty line - A benchmark for estimating poverty indicators consistent with a country's specific economic and social situation.

Income distribution - The percentage of the total income divided among society individuals and its flow through time.

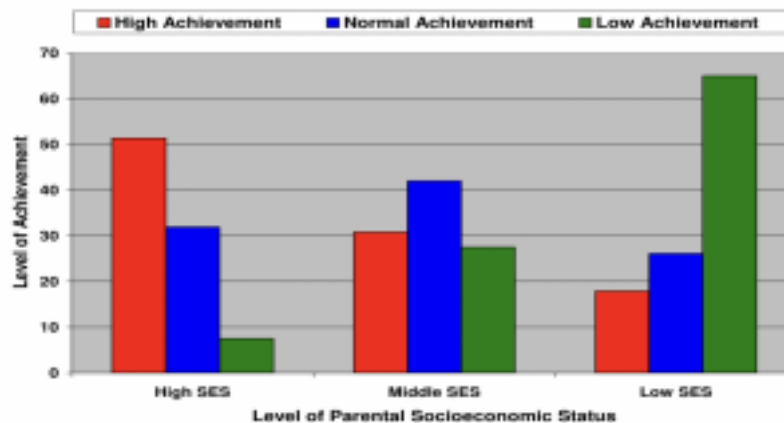
Socioeconomic (difference between economic)- The relationship between social and economic factors, examining how policies and conditions affect social structure and how social values impact economic outcomes.

### **Literature reviews**

The issue of socioeconomic status and its impact on education is a significant challenge that affects millions of students worldwide. Access to quality education is critical for students to succeed, but distribution often denies them that opportunity. It limits access to resources that are essential for academic excellence, making it difficult for children to achieve their full potential. However, the situation worsened as the COVID-19 pandemic exacerbated this problem, disrupting the education sector and creating additional obstacles for students.

### **Influential Elements**

Generally, parental socio-economic status somewhat influences a child's education. That idea is no doubt, as Qaiser Suleman and his colleague, who majored in the Institute of Education & Research, reveal the positive correlation between socioeconomic status/parental income and academic achievement through their study of secondary students in District Karak, Pakistan. In the process of this investigation, the researchers delimited the population into 1500 10th-grader male students and held six close-ended questionnaires to find out their placement in economic status, parent work, and academic achievement. Due to this study, the investigators discover a clear contrast between high and low-income rates and the level of success, as shown in the table below, which is enough to conclude that parental socioeconomic status significantly affects academic achievements(29).



However, as this tendency is applied to male students, so are female students. Throughout the investigation of the case of both male and female students in 10th graders in Pakistan, M.S. Farooq, A.H. Chaudhry, M. Shafiq, and G. Berhanu explore different factors, not just socioeconomic status, which influence their academic performance. As for this research, they prove that “socioeconomic status and parental educations are significant predictors for students’ performance at school” (10) in both genders despite girls with higher performance. These discoveries of investigative evidence convey that families with economic stability or superiority have greater possibilities for their offspring to achieve higher grades, creating an affluence cycle that reciprocally constructs the poverty cycle.

Admittedly Tao Lin and Han Lv, and Jakhongir Shaturaev and Gulnora Bekimbetova acknowledge the correlation between economic and academic, but they go further on what specific negatives could be caused by socioeconomic variability, which is lack of accessibility to “good” resources. Through the course of research in China Family Panel Studies (CFPS) in 2014, Tao Lin and Han Lv analyzed family income’s tangible effect on education and predicted future income distribution and education. From the examination, they discovered a positive correlation between family income and children’s educational level due to the difference in the availability of educational resources such as text/workbooks and computers (53). Jakhongir Shaturaev and Gulnora Bekimbetova agree that there is an exact lack of resources due to the disadvantaged economy through simultaneously examining another influential element that could be affected by the economy, the quality of teachers due to the quality of the training program. From the process of surveying the teachers in Indonesia and Uzbekistan in 2021 about the poor quality of education and low academic achievements, they discovered that low “expenditures on quality textbooks, school items, teaching materials, and teacher training programs” (8) resulted in lacked conditions in education. As for this, education is not only about attending school but more about learning from genuine materials as well as teachers. Hence, with a lack of these aspects, students will have higher feasibility of experiencing low academic achievements. This ultimately illustrates that education is not a one-sided field but contains various dimensions. Taking one aspect, economics can have numerous angles that disturb students from achieving high academic achievements.

Hence, what will be the case of one of the influential elements for students, the length of studying time, which could be fluctuated by socioeconomic status? Will it negatively associate with academic achievement?

### Child Working

As aforementioned, it has been statistically proven that some proportion of Indonesian adolescents is experiencing child labor which reduces their time for other activities, including education. Then why do

parents allow their children to labor even though it has an inverse influence on children? There is a clear pattern for parents who send their children to work.

Nina Triningsih and Masaru Ichihashi studied the relationship between education policy on child labor and the inclination of determination of Indonesian to child labor in their article “The Impact of Poverty and Educational Policy on Child Labor in Indonesia.” using the data from the Indonesia Family Live Survey and Statistics Indonesia. According to those two data sources, the author analyzed that children in poor households were likely sent to work for additional income for survival. Additionally, they uncovered the inclination of an unstabilized family environment: parents’ education level is middle-lower range as there is corporate solid income variation, where a higher level of education resulted in a higher income level (15).

In a different source, Florentz Magdalena, Sukamdi Sukamdi, and Abdur’ Rofi strongly agree on the tendency of decisions for child labor by presenting an extremely high correlation of “73.11% of the variation in child labor participation in Indonesia is influenced by differences in household socio-economic characteristics.” (99). Household conditions have become an influential part of decision-making for child labor, and this inclination will form a poverty cycle.

A detailed analysis of household socioeconomic characteristics is done by Mochammad Fahlevi as he discovers the influence of the father, mother, household, and community characteristics on the length of child laborers working time in Bengkulu city in Indonesia. According to their result, the variable ability of all the elements combined explaining child labor is 67.1% significant (26). This tells us that every single factor that influences socioeconomic characteristics has “a significant negative effect on the outpouring of child labor time in Bengkulu, which, if those improved, then the time spent working for child labor will decrease.”(29) Hence, various influential elements combine to steal student time, and we must confront the issue of reducing students’ educational time due to their parent’s socioeconomic status.

This proportion varies between the ages, as Social Monitoring and Early Response Unit (SMERU) reveals in the article “Child Poverty and Disparities in Indonesia: Challenges for Inclusive Growth,” the cooperative work with Badan Perencanaan Pembangunan Nasional, the Borrower's National Development Planning Agency, and any successor (BAPPENAS) and the United Nations International Children's Emergency Fund (UNICEF). Based on the background, where 13.8 million Indonesian children live below the national poverty line, they conducted research to clarify the multi-dimensional nature of child poverty. (3) By this clarification, it factorizes that the school participant rate among 7-12 years old from stabilized households has a three times higher quantity than unstabilized quintile households. Furthermore, for the range of 16-17 years old, they face five times differences between the two groups (134). It can be anticipated that the older the age they are, the greater the chance of them experiencing depreciated education; instead, they are forced to child labor for financial support, which reduces studying time. However, unfortunately, there is another significant element that threatens the length of education time, and that is television. Even though Indonesian students who are disabled socio-economic status encounter disabilities of accessibility to textbooks and literature works, they enjoy television as digitalization develops and enhance the convenience of accessing them (123). The multiple negative aspects caused by their economic environment have alienated students from even studying.

### **Coronavirus Disease Influence**

In 2019, the terrifying pandemic, Coronavirus (COVID-19) fell everyone in an environment where they were obliged to restrict activities, which resulted in stagnation and regeneration of lifestyle, including



adolescents. It is evident and uncomplicated to recognize the students' situations; however, suffering in the situation at an immature age is notable for themselves and their education system.

According to Slamet, Abd. Malik Karim Amrullah, Sutiah, and Ali Ridho, the member of different fields of the department from State Islamic University of Maulana Malik Ibrahim Malang, where the transformation of college teachers' and students' experiences from face-to-face offline education and distanced online education revealed there was a shift to lectures through electronic devices, and as a result, they missed interactive communication, in-depth discussion, and emotional communication. However, as 81.30% of the lecturers have been working for less than 20 years, or have been living in the era of information technology, both lecturers and students are already accustomed to using electronic media in learning(746), so they do not feel obstacles in online learning. This result conveys that there is no proportional relationship between feeling toward online education and communication success.

This case is similar to high school students where Tjhin Wiguna and his colleagues managed their investigation of families with aged children between 11 to 17 years old about the proportion of behavioral and emotional risk during the first and second COVID-19 pandemic. From the investigation, this paper auspiciously discovers that during the pandemic, around 50 % of participants experienced a transformation of lifestyle where “10.6% of research subjects were at risk for emotional problems, 15.0% for conduct behavior, 38.1% for peer-relationship problems, 8% for hyperactivity behavior, and 28.3% for pro-social behavior problems.”(4) This shift to an inexperienced psychological state will somewhat influence both concentration and time allocation for studying as well as laboring hours, as generally, people require time to grow accustomed to a new circumstance.

Not only education but COVID-19 also influenced the economic field as it restricts people's mobility, consequently reducing their economic income. Through the article “The Impacts of COVID-19 Pandemic on Socio-Economic Mobility in Indonesia”, the author Nano Prawoto, Eko Priyo Purnomo, Abitassha Az Zahra approach the question of COVID-19's impact on socioeconomic mobility by utilizing secondary data from COVID-19 Community Mobility Reports Institute and COVID-19.go.id to create descriptive statistical methods and quantitative analysis with the correlation method. The analysis discovered “the relationship between the number of people tested positive for COVID-19 and economic mobility, with an average correlation coefficient above 0.8”. Obviously, this reduction in economic mobility consequently suffers various people, including children, from the stability of life, and the causes of this overall drop in income have forced more students to experience an arduous time to reach honorable accomplishments, as the previous sector of this paper has already proved it.

## Summary

Ultimately, these sources clarify that the majority of poverty experience stagnation in academic performance. And accordingly, this is due to the lack of resources and accessibility of quality education. However, the very status of poverty puts children in a situation where those bases are difficult to secure. Though this tough situation caused by economic status likewise loses the opportunities for students to ensure their studying time due to coerced child labor. Add to this situation, the current COVID-19 causes sudden changes to strange habits, which have been designated as a headwind regarding the education field recently. Hence, even though it has been proven that the presence of correlation, the situation today is not as exact as before. Thus, this study will conduct a survey to explore the combined influence of the length of study caused by their socioeconomic status on their academic study.

## Methodology

Among the various survey methods existing in the world, to investigate the correlation between Indonesia's socioeconomic status, length of study, and the academic performance of high school students, I conducted an online questionnaire through voluntary sampling at an International school in Surabaya, Indonesia. This survey has the potential to discover the significance of the financial influence and the duration of study on the achievability of academics goal, which ultimately reveals the elements needed to equalize academic success rates for this post-COVID season.

By hearing online surveys, people might have prejudice about inaccuracy due to the limitations of close-ended questions and non-response bias. However, as Joel R. Evans and Anil Mathur verified through their study, if the survey is conducted in an accurate situation and process, it will propose us with more beneficial results than other formats (195). One of the selected situations they illustrate is when there is a non-desire for interviewer interaction. With the presence of the interviewer, there is a possibility of causing interviewer bias or error, especially when the topic is sensitive. As aforementioned, the conducted topic is regarding academic achievement and socioeconomic status, which is evident that they are sensitive topics. Due to this purpose, to eliminate these prospects, the online questionnaire was applied as the method to collect the data.

## The Purpose of the Questions

### Sections 3&4 Post-COVID & During COVID

In order to uncover the individual students' time usage other than school, question No 1 interrogates activities other than study. As this study's principal objective is to discover the influence of an individual's socioeconomic status on academic performance, the list of choices includes "Work to earn money" and "Household chores or Family help," which is anticipated to vary depending on their livelihood. Thus, if these choices are frequently chosen and the spending time is longer for the people with lower socioeconomic status than that of higher, then it is concludable that the presence of somewhat correlation between income status and their leeway time. For questions, No 7 & 8 aim to find out how the amount spent on the study affects academic performance, which will be asked in a later section.

### Section 5 Sensitive questions

In this section, I culminated the questions that people would most likely feel uncomfortable with or find challenging to answer, such as socioeconomic status and academic achievement. These questions are considered to be sensitive questions as "survey questions about ... income are usually considered sensitive; they tend to produce comparatively higher nonresponse rates or larger measurement error in responses than questions on other topics" (Tourangue and Yan 860). Therefore, in order to increase the response rate and make the respondents less anxious as much as possible, this section was aligned at the end of the survey to develop a credit that this survey is severe and appropriate through inquiry so far and reinforce its anonymity and optionality to alleviate pressure to respondents.

Question No 1 was set up to measure each individual's socioeconomic position and question No 3 was to quantify their academic performance position, which both are indispensable existence that is the core of this research. With the given questions, it is possible to formulate correlational graphs between socioeconomic status and time usage, socioeconomic status and academic performance, and time usage and academic performance.

## Results

A total of 24 high school students responded to the survey, while 19 students (79%) completely answered with no blanks left. Inspecting the academic achievement level, every subject responded to this inquiry, and from the responses, it is concludable that they all performed highly, as 12 out of 24 (50%) received an average score above 95%, next after 7 out of 24 (30%) received an average between 90% to 95% which the total of 19 respondents (79%) acquire an average of over 90% on their academics.

Moving on to time management, the survey discovered the difference in subject’s time usage between during COVID and post-COVID season. From the subjects, the rate of participants “Working to earn money” and Household chores or Family help” during COVID 10 out of 24 (41.7%), and during post-COVID 8 out of 24 (33.3%), which both fall below 50% but still the time of the COVID environment has a higher rate. Similarly, the devoted time to the two choices increased by an average of 18 minutes at the time of COVID. However, the case of study time shows the opposite phenomenon from what just visualized, as the average time spent was 25.25 hours during COVID but 29.8 hours for post-COVID time. As for this, during the COVID season, students focused a slightly higher percentage on working or household chores compared with post-COVID, but the case of studying time is vice versa.

**Table 1**

Income	Grade	Work for Money or Household chores		Studying time		
		Post-COVID (hours)	During COVID (hours)	Post-COVID (hours)	During COVID (hours)	
	90% - 100%		0	0	25	25
> Rp 80,000,000	90% - 100%		1	1	19	19
> Rp 80,000,000	90% - 100%		0	0	42	21
> Rp 80,000,000	95% - 100%		2	1	26	29
> Rp 80,000,000	90% - 100%		15	17	70	64
> Rp 150,000,000	90% - 94%		0	0	17	23
Rp 80,000,000 - Rp 100,000,000	95% - 100%		0	0	53	48
Rp 120,000,000 - Rp 150,000,000	90% - 94%		0	2	23	28
	90% - 94%		0	0	16	9
Rp 50,000,000 - Rp 80,000,000	85% - 89%		2	6	33	0
Rp 30,000,000 - Rp 50,000,000	95% - 100%		0	2	41	46
> Rp 150,000,000	95% - 100%		0	1	11	16
Rp 10,000,000 - Rp 30,000,000	95% - 100%		1	0	9	0
	90% - 94%		0	0	56	56
> Rp 150,000,000	95% - 100%		0	0	56	22
Rp 80,000,000 - Rp 100,000,000	95% - 100%		1	1	41	28
> Rp 150,000,000	90% - 94%		1	1	18	14
> Rp 150,000,000	95% - 100%		0	0	12	56
> Rp 150,000,000	95% - 100%		0	0	26	40
Rp 120,000,000 - Rp 150,000,000	95% - 100%		0	0	18	14
Rp 100,000,000 - Rp 120,000,000	90% - 94%		0	0	23	23
Rp 120,000,000 - Rp 150,000,000	95% - 100%		1	0	37	0
Rp 80,000,000 - Rp 100,000,000	90% - 94%		0	1	27	18
	95% - 100%		0	0	17	7
Average			3	3.3	29.83333333	25.25

## Discussion

In order to discover the correlation for each element, the method of scatter plot was applied. A scatter plot is one of the ways to identify a possible correlation between two different variables while providing a clear visual representation of the relationship as well as its strength, trend, and shape. Admittedly, there are some possible demerits in conducting this method, such as its inability to provide a precise degree of correlation and the existence of causation. Even with these demerits, it is assumable that a scatter plot is a suit for this research due to the presence of the under-mentioned merits. One of them is the scatter plot method has the ability to asthenia extreme values. As each individual has different abilities, there might be a presence of deviated subjects in the study. Thus extracting those possible extraneous variables will



produce coherent results. Additionally, the aim of this study is to verify the strength of the correlation between two variables. As a method to measure the relationship, there is nothing more suitable way than a scatter plot, so this approach has been utilized in this paper.

Graph 1 illustrates the correlation between socioeconomic status and academic achievement. In order to formulate this table, each choice of socioeconomic status question from the survey was matched with a number between 0 to 6, which is located on the x-axis, where 0 indicates "< Rp 10,000,000" and 6 represents "> Rp 150,000,000". Utilizing the same allocation with academic achievement with numbers 0 to 10, where 0 equals to "0% - 49%" and 10 means "95% - 100%". By matching those two elements, this Graph 1 scatter plot graph was formulated, which illustrates the weak, positive linear association between socioeconomic status and academic achievement with no presence of an outlier. As this graph shows a positive correlation with a slope of 0.0344, it is anticipated to be concludable that higher individual socioeconomic status will lead to higher academic achievement. Though, looking at the correlation coefficient, it only reaches 0.08, which is considered to be a no correlation. Thus, the graph ultimately concludes that socioeconomic status has almost no influence on academic performance. However, even though there is no outlier, looking at the individual's comparison of socioeconomic status and academic achievement, there are two considerable high-leverage points, which one answered on "Rp 10,000,000 - Rp 30,000,000" and another "Rp 30,000,000 - Rp 50,000,000" but they both still score an average of "95%-100%". Thus, by excluding those two extreme values and reconstructing the graph, it depicts a moderate positive linear association with no outlier and a slope of 0.268 and an increase in correlation coefficient to 0.44. Hence, it can be concluded that socioeconomic status also has a positive influence on academic performance, but it does not necessarily has a connection to the high status that produces high grades, but individual intelligence or other factors have such a significant power that could overturn the standing position of the economy.

Moving on, Graph 3 illustrates the correlation between study time and academic achievement, and it portrays a very weak, negative linear relationship with no outlier. This time the studying time was replaced with a socioeconomic status section in Graph 1 and located on the x-axis. With this comparison, it verifies the negative relationship between the two variables. Though its slope value is significantly small, the value of  $-2.3 \times 10^{-3}$  as well as, its correlation coefficient is -0.06, which is categorized as a very weak or none strength of relationship. As for this, it is again concludable that there is no correlation between the two variables. Nonetheless, this correlation also has several extreme values, as illustrated in Graph 1, where this time, three subjects answered they received an average grade of "95%-100%" while studying less than 15 hours a week, which is considerably short compared to others. Thus, removing those three and recreating the graph, the scatter plot of Graph 4 was formed. Surprisingly, the association of this scatter plot changed its signs as it indicates a weak, slightly positive linear association with no outlier, while the correlation coefficient jumped to 0.12, which is still small but double the previous graph. In a nutshell, even though very weak, there is a positive correlation between study time and academic achievement, but still, the studying time does not have adequate strength to secure their academic acquirement.

With the two graphs presented, the hypotheses are somewhat proven. However, from further analysis of the data collected, there is a new interesting relationship was revealed.

Graph 5 illustrates the portrait of the very weak, negative linear association between socioeconomic status and study time with no outlier. Though, this graph has a clear high leverage point on (1,9), which significantly reduces the sharpness of the slope. Thus, by excluding the influential point, Graph 6 was made, which shows a moderate negative linear association with a correlation coefficient of -0.41.

Interestingly, the relation between the two variables indicates negative correspondence as the higher socioeconomic position they are, the shorter time they spend on academic activities. As aforementioned, it is expected that the higher socioeconomic group will have longer study time as they do not lose their time due to unnecessary for them to do child work or other media to stabilize their life, and it has been illustrated in the case of our subjects as well (Graph 7 and 8). However, the results of this survey turned out to be the opposite of it, with a moderate correlation, so it can be said that the higher the socioeconomic hierarchy, the less studying time they take. Nonetheless, even with this inverse correlation, it has been proven in Graphs 1 and 2 that there is a reciprocity between the economic setting and scholastic accomplishment for our subjects, thus from the scatter plot graph constructed so far, it is concludable that higher socioeconomic status will more likely to receive higher academic achievement, but the reason for that is not because they have more time to study but some other aspects.

### **Fulfillment of Gaps in the Research**

This study has filled the gaps from the collation of pre-existing studies by analyzing the topic of time length and its influence on academics and susceptibility to influence by socioeconomic status to clarify how the economic standing relates to scholars. In the previous research, the aim was to investigate the significance of materials and teachers on scholastic accomplishment and how socioeconomic fluctuates their accessibility to the quality of those elements in the time pre-COVID, where they successfully developed a positive correlation of the two variables. In the different articles, they have verified the strong relationship between socioeconomic status and the rate of child labor. Thus, this time the focus has been shifted to the middle of the two, time usage and how economic position variates their leeway time within the situation of a post-COVID-19 where the unique environment in which pre-existing data are hardly applied.

### **Limitations**

Although our research yielded the aforementioned results, they are not necessarily generalizable but are applicable only in a couple of circumstances. One of the reasons for this is the number of samples. Throughout the survey conducted, it was successful to gather data from 24 subjects. However, this number is considered to be inadequate to generalize the outcome as it falls below 30, which is the target number for increasing “the confidence interval of your population data set enough to warrant assertions against your findings” (Ganti 1). Additionally, this investigation was conducted through only one school. Thus, this result could be applicable to that specific population, but with other sample populations, the outcome might be different from ours.

Secondly, the result given might incorporate some response bias. As aforementioned, online surveys have the potential to generate some non-response bias as participants have a right to choose the questions to answer. Additionally, even if they responded since the survey included some sensitive questions, social desirability bias might be produced. In order to tackle lowering the rate of non-response, there were some attempts, such as written promotion and inquiry position, but still, there was a presence of it in the subjects. Add to it, this survey also has the potential for voluntary bias. As clarified in the Methodology section, this study utilizes voluntary sampling, particularly reason for wider range distribution and convenience. However, for the demerits, they could cause voluntary bias, which the result of the sample won't represent the in population. Thus, that latent possibility of bias ultimately leads to the limited applicability of the result for this study.

## Conclusion

Education is a field influenced by multidimensional factors, including individual intelligence, classmate relationships, society's education policy, and of course, socioeconomic status, which is addressed in this paper. Additionally, it will be a significant determinant of children's future life which sets the priorities for equalized accessibility and conditions for each student on dominant. Socioeconomic status is one of the significant indicators of academic achievement. It has the power to direct the quality of education that they receive and improve the accessibility of quality materials. Add to them, it saves time for children from excessive labor (Graphs 7 and 8), which unreasonably unequalized the 24 hours a day given to all human beings. Thus, discovering the correlation between the three, socioeconomic status, academic achievement, and studying time length, will clarify the process of constructing the base on which each student can compete with their pure intelligence and endeavor. If it has been verified that the reduction of time due to the unstable economic status induces lower achievement, the society could implement a new policy that provides gratuitous additional sections for lecturing on drawback socioeconomic status or lowering the rate of extensive child labor by providing extra aid or constructing regulation for the length of it. Fortunately, or unfortunately, from the research conducted, it was not possible to confirm the presence of a correlation between the reduction of time due to economic setting and scholastic achievement but was able to conclude that there is a "NO" correlation between the two variables. Thus, in this case, further research of other downside factors due to low statuses, such as the quality of facilities, materials, attendance rate, and others, could be done in order to specify the element which influences children on the rate of achievement. Taking only the aspect of socioeconomic status, there is an extensive number of possible elements which could influence academic achievement. It does not matter if it is just one by one what is important is to eliminate the possibilities, focus on the remaining factors that have a significant influence, and take pinpoint countermeasures in order to brighten the future of children and, ultimately, the future of society.

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Appendix  
Survey  
Section 1

## AP Research

### Who am I:

I am Hirotaka Sugawara, Grade 11 student from Surabaya Intercultural School. I am currently taking AP Research, an interdisciplinary course that encourages students to demonstrate academic research skills on a topic of the student's choosing. To complete this course, I am conducting research on a topic related to socioeconomic status and academic performance.

### Purpose for this survey:

Since 1974, Indonesia is experiencing one of the top economic gaps in the world, which also creates a crevice in students' opportunities for academic study. Additionally, the COVID pandemic recently generated turmoil in every field, dramatically modifying people's lifestyles. Hence, in this study, I want to explore the significance of the correlation of one of the considered factors of reduction of academic achievement, the deduction of time, during post-covid in Indonesia in order to provide new insight into the usage of time for children's precious time.

### Main Question:

To what extent does each individual's socio-economic status influence High school students' academic performance during post-covid?

This survey will take about **10-15** minutes.

This survey will be **anonymous**, and the **results will be deleted** after the research, so please answer honestly for accurate results.



**Section 2****Basic Information**

Informasi awal

Type of your school

Public

Private

Where is your school located?

Your answer

---

Grade

12

11

10

9

## Section 3

## Post COVID | Pasca COVID

In this section, please answer about your **current situation**.

Di bagian ini, tolong jawab tentang situasi Anda **saat ini**.

**1. Choose all activities you do other than study or schoolwork**

**BI - Pilih semua aktivitas yang Anda lakukan selain belajar/tugas sekolah**

- Work to earn money (ex., a part-time job, freelance, e-sports, online jobs, etc.) | Bekerja untuk mendapatkan uang (mis. pekerjaan paruh waktu, pekerja lepas, olahraga elektronik, pekerjaan online, dll.)
- Households chores or Family help | Pekerjaan rumah tangga atau Bantuan keluarga
- Physical Sports | Olahraga Fisik
- Religious activity | Kegiatan keagamaan
- Leisure (ex., gaming, reading, shopping, watching, etc.) | Kegiatan lain yang disukai (mis., bermain game, membaca, berbelanja, menonton, dll.)

2. If you choose "Work to earn money" on question No.1, how long do you spend on that (in hours per day)?

**BI** - Jika Anda memilih "Bekerja untuk mendapatkan uang" pada pertanyaan No.1, berapa lama waktu yang Anda habiskan untuk itu (dalam satuan jam per hari)?

- |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1                     | 2                     | 3                     | 4                     | 5                     | 6                     | 7                     | 8                     | 9                     | 10                    |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

3. If you choose "Households chores/Family help" on question No.1, how long do you spend on that (in hours per day)?

**BI** - Jika Anda memilih "Pekerjaan Rumah Tangga/Bantuan Keluarga" pada pertanyaan No.1, berapa lama waktu yang Anda habiskan untuk itu (dalam satuan jam per hari)?

- |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1                     | 2                     | 3                     | 4                     | 5                     | 6                     | 7                     | 8                     | 9                     | 10                    |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4. If you choose "Physical Sports" on question No.1, how long do you spend on that (in hours per day)?

**BI** - Jika Anda memilih "Olahraga Jasmani" pada pertanyaan No.1, berapa lama waktu yang Anda habiskan untuk itu (dalam satuan jam per hari)?

- |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1                     | 2                     | 3                     | 4                     | 5                     | 6                     | 7                     | 8                     | 9                     | 10                    |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

5. If you choose "Religious activity" on question No.1, how long do you spend on that (in hours per day)?

**BI** - Jika Anda memilih "Kegiatan Keagamaan" pada pertanyaan No.1, berapa lama waktu yang Anda habiskan untuk itu (dalam satuan jam per hari)?

1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. If you choose "Leisure" on question No.1, how long do you spend on that (in hours per day)?

**BI** - Jika Anda memilih "Kenyamanan" pada pertanyaan No.1, berapa lama waktu yang Anda habiskan untuk itu (dalam satuan jam per hari)?

1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. How much time do you spend on study or school work **per weekdays** (in hours per day)?

**BI** - Berapa banyak waktu yang Anda habiskan untuk belajar atau mengerjakan tugas sekolah per hari kerja (dalam satuan jam per hari)?

1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. How much time do you spend on study or school work **per weekend** (in hours per day)?

**BI** - Berapa banyak waktu yang Anda habiskan untuk belajar atau tugas sekolah per akhir pekan (dalam satuan jam per hari)?

1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section 4

### During COVID | Musim COVID

In this section, please answer the following questions about your activities **during the middle of the COVID season (2020-2021)**

Di bagian ini, silakan jawab pertanyaan-pertanyaan berikut mengenai aktivitas Anda **selama musim COVID (2020-2021)**

1. Choose all activities you do other than study or schoolwork

**BI** - Pilih semua aktivitas yang Anda lakukan selain belajar/tugas sekolah

- Work to earn money (ex., a part-time job, freelance, e-sports, online jobs, etc.) | Bekerja untuk mendapatkan uang (mis. pekerjaan paruh waktu, pekerja lepas, olahraga elektronik, pekerjaan online, dll.)
- Households chores or Family help | Pekerjaan rumah tangga atau Bantuan keluarga
- Physical Sports | Olahraga Fisik
- Religious activity | Kegiatan keagamaan
- Leisure (ex., gaming, reading, shopping, watching, etc.) | Kegiatan lain yang disukai (mis., bermain game, membaca, berbelanja, menonton, dll.)

2. If you choose "Work to earn money" on question No.1, how long do you spend on that (in hours per day)?

**BI** - Jika Anda memilih "Bekerja untuk mendapatkan uang" pada pertanyaan No.1, berapa lama waktu yang Anda habiskan untuk itu (dalam satuan jam per hari)?

- |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1                     | 2                     | 3                     | 4                     | 5                     | 6                     | 7                     | 8                     | 9                     | 10                    |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

3. If you choose "Households chores/Family help" on question No.1, how long do you spend on that (in hours per day)?

**BI** - Jika Anda memilih "Pekerjaan Rumah Tangga/Bantuan Keluarga" pada pertanyaan No.1, berapa lama waktu yang Anda habiskan untuk itu (dalam satuan jam per hari)?

- |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1                     | 2                     | 3                     | 4                     | 5                     | 6                     | 7                     | 8                     | 9                     | 10                    |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4. If you choose "Physical Sports" on question No.1, how long do you spend on that (in hours per day)?

**BI** - Jika Anda memilih "Olahraga Jasmani" pada pertanyaan No.1, berapa lama waktu yang Anda habiskan untuk itu (dalam satuan jam per hari)?

- |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1                     | 2                     | 3                     | 4                     | 5                     | 6                     | 7                     | 8                     | 9                     | 10                    |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



5. If you choose "Religious activity" on question No.1, how long do you spend on that (in hours per day)?

**BI** - Jika Anda memilih "Kegiatan Keagamaan" pada pertanyaan No.1, berapa lama waktu yang Anda habiskan untuk itu (dalam satuan jam per hari)?

1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. If you choose "Leisure" on question No.1, how long do you spend on that (in hours per day)?

**BI** - Jika Anda memilih "Kenyamanan" pada pertanyaan No.1, berapa lama waktu yang Anda habiskan untuk itu (dalam satuan jam per hari)?

1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. How much time do you spend on study or school work **per weekdays** (in hours per day)?

**BI** - Berapa banyak waktu yang Anda habiskan untuk belajar atau mengerjakan tugas sekolah per hari kerja (dalam satuan jam per hari)?

1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. How much time do you spend on study or school work **per weekend** (in hours per day)?

**BI** - Berapa banyak waktu yang Anda habiskan untuk belajar atau tugas sekolah per akhir pekan (dalam satuan jam per hari)?

1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section 5

Thank you for answering the survey. The following questions are optional. However, they are critical to answering my research question. | Terima kasih telah menjawab survei. Pertanyaan berikut adalah opsional. Namun, mereka sangat penting untuk menjawab pertanyaan penelitian saya.

In this section, we will ask you some sensitive questions, but it will be **anonymous** and ensures that **no one can identify** who this answer is from. If you don't want to answer you don't have to. So if possible please answer honestly.

Di bagian ini, kami akan mengajukan beberapa pertanyaan yang mungkin bersifat sensitif dan personal kepada Anda, tetapi akan bersifat anonim dan memastikan bahwa tidak ada yang dapat mengidentifikasi dari siapa jawaban ini berasal. Jadi apabila memungkinkan maka kami mohon untuk dapat menjawab dengan jujur.

1. What is your family's monthly income?

**BI** - Berapa pendapatan bulanan keluarga Anda?

- < Rp 10,000,000
- Rp 10,000,000 - Rp 30,000,000
- Rp 30,000,000 - Rp 50,000,000
- Rp 50,000,000 - Rp 80,000,000
- Rp 80,000,000 - Rp 100,000,000
- Rp 100,000,000 - Rp 120,000,000
- Rp 120,000,000 - Rp 150,000,000
- > Rp 150,000,000

### Grade

The following questions are asking your average grade. Please answer on suitable question which applies to your grading system.

3. Percentage
4. IB score
5. IGCSE score

Pertanyaan berikut menanyakan nilai rata-rata Anda. Harap jawab pertanyaan yang sesuai dengan sistem penilaian Anda di sekolah.

3. Persentase
4. Skor IB
5. Skor IGCSE

### 2. What category would you consider your grade at?

**BI** - Anda menganggap nilai tersebut termasuk dalam kategori.....

- High | Tinggi
- Middle | Tengah
- Low | Rendah

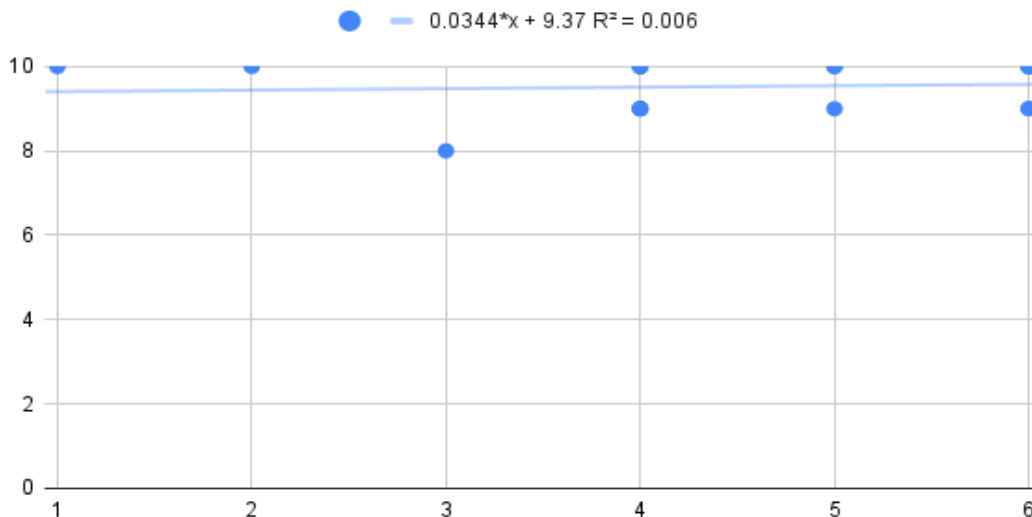
3. Which range is your average grade (Percentage)?

BI - Berapa nilai rata-rata (Persentase) Anda?

- 95% - 100%
- 90% - 94%
- 85% - 89%
- 80% - 84%
- 75% - 79%
- 70% - 74%
- 65% - 69%
- 60% - 64%
- 55% - 59%
- 50% - 54%
- 0% - 49%

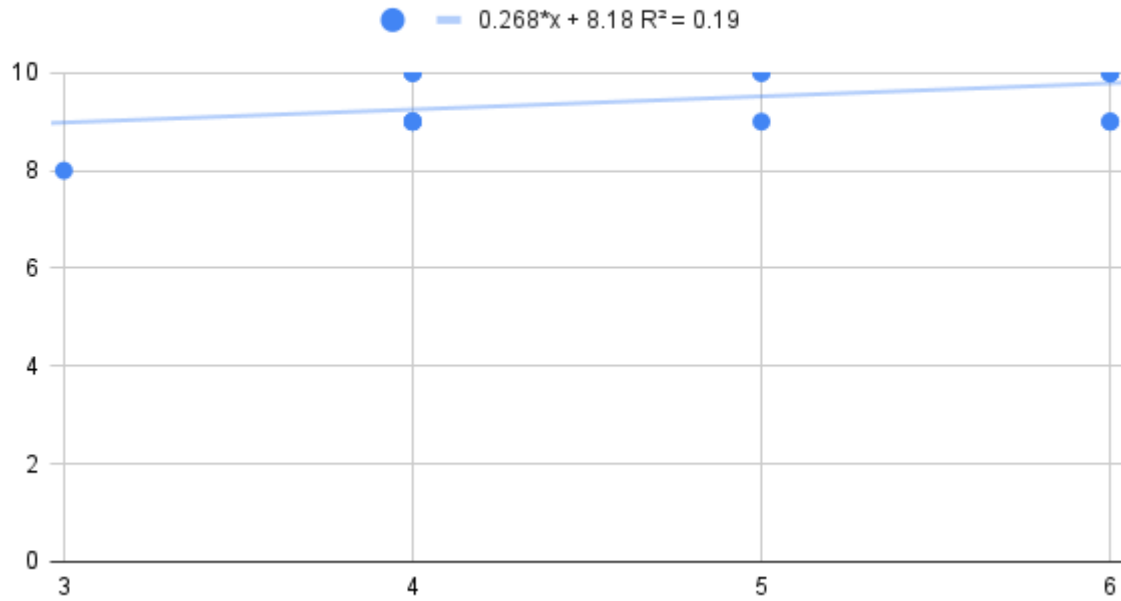
Graph 1:

### Socioeconomic Status and Academic Achievement



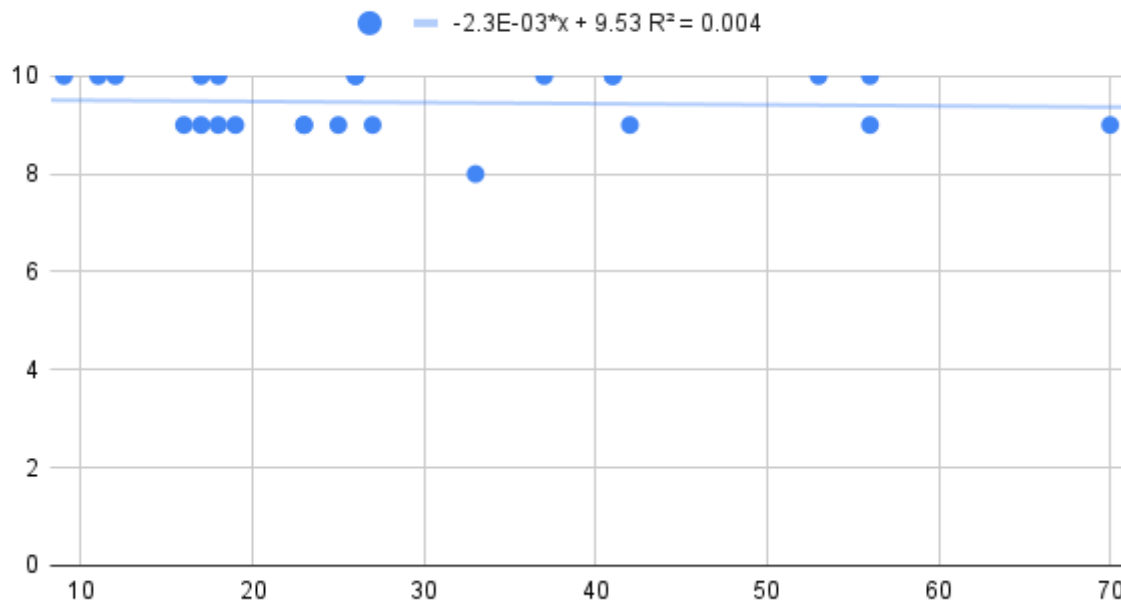
Graph 2:

Socioeconomic Status and Academic Achievement



Graph 3:

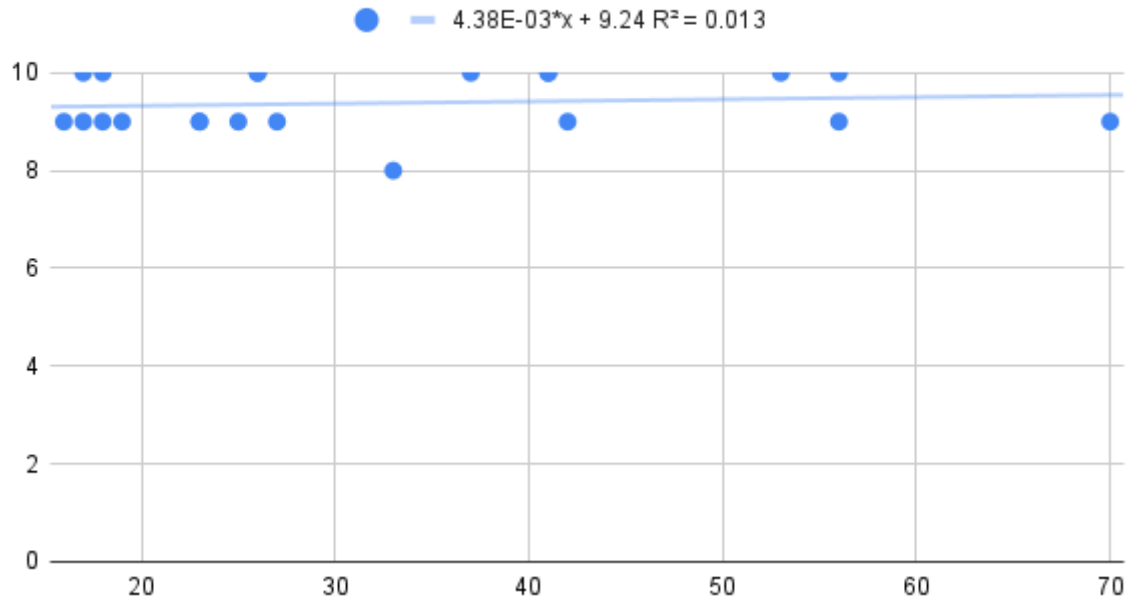
Study Time and Academic Achievement





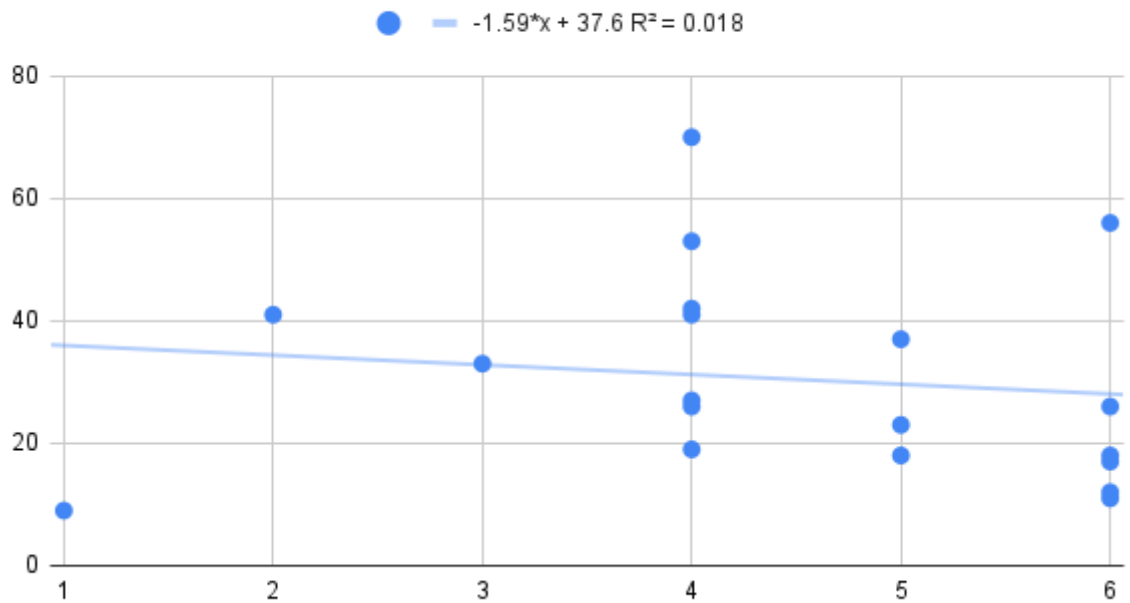
Graph 4:

### Study Time and Academic Achievement



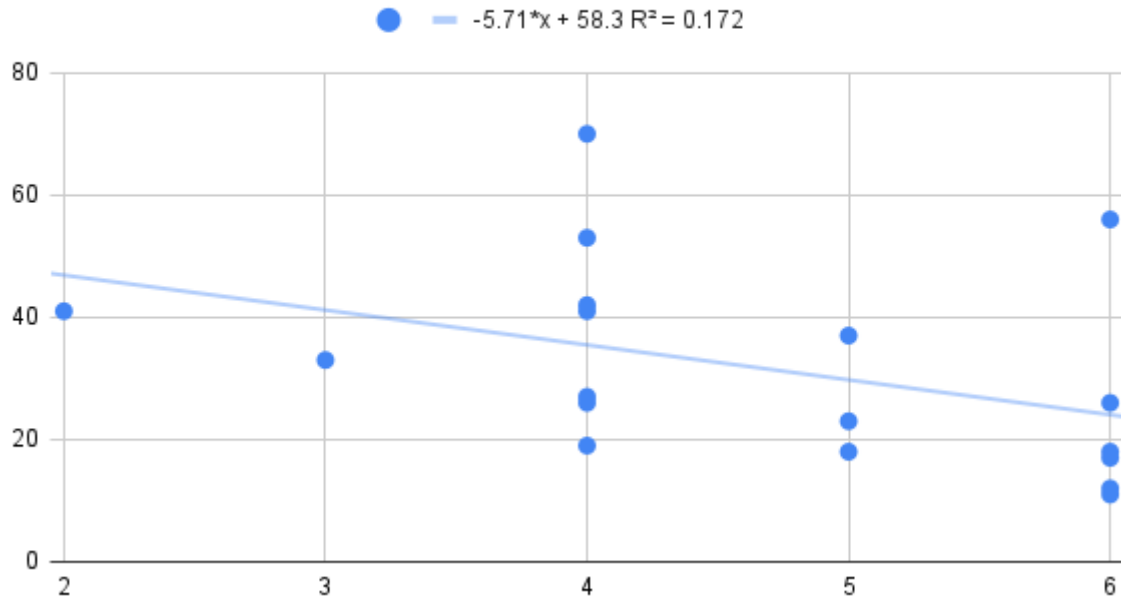
Graph 5:

### Socioeconomic Status and Study Time



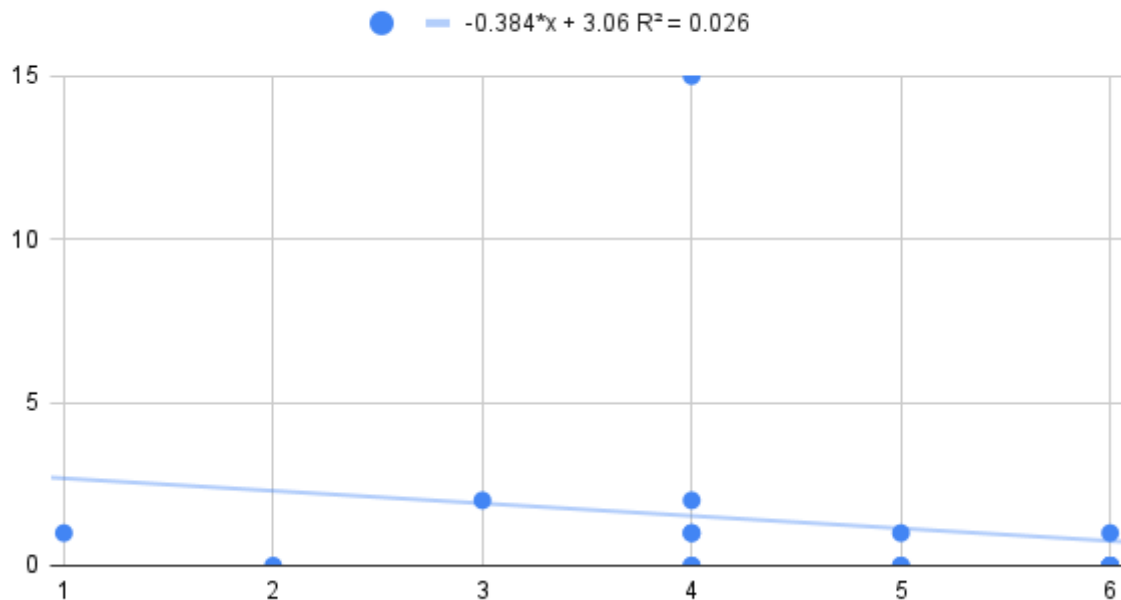
Graph 6:

Socioeconomic Status and Study Time



Graph 7:

Socioeconomic Status and Working Time



Graph 8:

## Socioeconomic Status and Working Time

