Innovations

Parental Involvement and Academic Success in Grade 10: A Comparative Analysis of Socio-Economic Groups

Caster Jovanhoe T. Badival, Jonathan Jose S. Vincoy, Kent Langato
University of the Cordilleras
Correspondence Author: **Caster Jovanhoe T. Badival**

Abstract:
Problem: *Parental involvement is considered important for a child's academic development. However, limited research has examined the relationship between parental involvement and academic achievement among Grade 10 students from different socio-economic groups. The research aims to find a significant relationship between parental involvement and academic performance among low-income, middle-income, and high-income groups. Moreover, it also aims to determine if there is a significant difference in the level of parental involvement and academic achievement among the three socio-economic groups.*
Design/Methodology/Approach: *This study used a purposive and random sampling method to select 350 Grade 10 students from one public and one private school. Participants completed a questionnaire consisting of a demographic section, including socio-economic groups and academic achievement measured by GPA, as well as a 4-point Likert scale to assess the level of parental involvement. Statistical analyses, including correlation, ANOVA, and Tukey's post-hoc test, were conducted to examine the research questions.* ***Findings:*** *The results indicated no significant relationship between parental involvement and academic performance among the different socio-economic groups. However, a significant difference in parental involvement was found between the low-income and high-income groups. Additionally, a significant difference in academic performance was observed between the low-income and middle-income groups. No significant differences in parental involvement or academic performance were found between the middle-income and high-income groups.* ***Conclusion:*** *These findings suggest that factors other than parental involvement may play a more prominent role in determining academic performance among Grade 10 students across different socio-economic groups. Socio-economic disparities may influence parental involvement levels, with low-income families facing greater challenges in actively engaging in their child's education. Furthermore, the study highlights the existence of a socio-economic achievement gap, with low-income students experiencing lower academic performance compared to their middle-income peers. Understanding these connections is essential for developing interventions and support programs to bridge the achievement gap and promote equitable educational opportunities for all students.*

Keywords: *parental involvement, academic achievement, socio-economic groups, Grade 10 students, correlation, ANOVA, achievement gap.*

Introduction:

Parental involvement is widely recognized as a critical factor in a child's educational development and academic success. Extensive research has consistently demonstrated the positive impact of parental involvement on various aspects of a child's learning journey, including academic performance, motivation, behavior, and social adjustment. Parental involvement encompasses a range of activities, such as communicating with teachers, monitoring academic progress, providing support, and creating a conducive learning environment at home.

Numerous studies have shown that when parents actively participate in their children's education, it leads to improved academic outcomes and overall well-being. The Centre for Child Well-Being (2010) emphasizes that parental involvement not only boosts a child's morale and attitude towards learning but also enhances their academic performance across various subject areas. It further suggests that family involvement in education helps children grow into responsible and productive members of society.

Chapap (2018) emphasizes the critical role of parental encouragement and support for learning activities, combined with active involvement in schooling. This involvement provides children with numerous opportunities for success. Similarly, Sapungan and Sapungan (2014) highlight that consistent parental effort is associated with higher levels of academic performance, with the magnitude of the effect being substantial.

However, as children progress through their educational journey and enter school, the active roles of parents often recede, and the responsibility for their upbringing is primarily placed on the educational institutions. This shift in parental involvement can be observed in various ways, such as non-attendance at Parent-Teacher Association (PTA) meetings, failure to monitor homework and assignments, and limited engagement with school-related communication (Tonn, 2005).

These diminishing levels of parental involvement can have significant effects on children's academic performance. Tonn (2005) emphasizes the detrimental impact of reduced parental involvement, highlighting that it can hinder children's performance in schools. To address this issue, educational institutions and authorities have implemented measures to promote parental involvement. However, despite these efforts, many parents remain passive or have limited participation in school activities (Department of Education, 2009).

Bautista (2019) conducted a study on parental involvement in Calatagan National High School and found that the level of parents' participation through PTCA meetings averaged only 45-50% of the school's target of 95-100%. The study identified several reasons for the low level of parental involvement, including financial constraints, lack of information dissemination, busy schedules, parents' perceptions of PTA meetings, and distance from the school. These findings indicate that various barriers prevent parents from actively engaging in their children's education, highlighting the need for further exploration and understanding.

Moreover, socio-economic status plays a significant role in parental involvement and educational outcomes. Socio-economic status, often categorized into low-income, middle-income, and high-income groups, has been identified as a significant determinant of educational opportunities and achievements (Johnson, Crosnoe, & Elder, 2001). Students from different socio-economic backgrounds face varying degrees of access to resources, educational support, and opportunities, which can significantly impact their academic performance.

Understanding the relationship between parental involvement and academic achievement across socio-economic groups is essential for developing targeted interventions to enhance educational outcomes and bridge the achievement gap. However, limited research has specifically examined this relationship among Grade 10 students. Grade 10 is a critical juncture in the educational journey when students prepare for important examinations and make decisions about their future educational paths.

Therefore, the present study aims to investigate the relationship between parental involvement and academic achievement among Grade 10 students from different socio-economic groups. By examining the levels of parental involvement and academic performance across the low-income, middle-income, and high-income groups, this research seeks to contribute to the understanding of the interplay between parental involvement, socio-economic status, and academic outcomes.

Research Questions:

The research questions guiding this study are as follows:

1. Is there a significant relationship between parental involvement and academic performance among Grade 10 students across different socio-economic groups?
2. Is there a significant difference in the level of parental involvement among the low-income, middle-income, and high-income groups?

3. Is there a significant difference in the academic performance of Grade 10 students among the low-income, middle-income, and high-income groups?

Addressing these research questions will provide valuable insights into the role of parental involvement and socio-economic factors in shaping academic achievement among Grade 10 students. The findings will have implications for educational policymakers, practitioners, and parents in developing strategies to enhance parental engagement and support student success.

Methodology:

Participants:

Participants were selected using a combination of purposive and random sampling methods. The sample consisted of 350 Grade 10 students from one public school and one private school within the target region. Due to the limited number of students falling specifically within the high-income socio-economic group, the distribution of participants across the three groups was uneven. However, efforts were made to include a representative sample from each socio-economic group to ensure meaningful comparisons. Informed consent was obtained from both participants and their parents/guardians prior to their participation.

Measures/Instruments:

The questionnaire (see Appendix A) used in this study was adapted from the study of Dohner-Chávez (2006) on parental involvement and academic achievement. It employed a 4-point Likert scale to measure the level of parental involvement. The questionnaire was divided into two sections. The first section collected demographic information, including participants' grade point average (GPA) as a measure of academic achievement. The GPA data were verified using official school records. The second section comprised a series of questions using the 4-point Likert scale, enabling students to self-report their level of parental involvement.

Procedure:

Data collection occurred over a specified period and followed a standardized procedure. Participants completed the parental involvement questionnaire during school hours, ensuring privacy and confidentiality. The Likert scale responses allowed participants to indicate their perceived level of parental involvement across various domains, such as communication, engagement in school activities, and support for academic tasks. Demographic information, including socio-economic status, was also collected. Academic performance data, in the form of participants' GPAs, were obtained from official school records.

Data Analysis:

Descriptive statistics were used to summarize the characteristics of the sample, including the distribution of participants across socio-economic groups. To address the research questions, correlation analyses were conducted to examine the relationship between parental involvement and academic performance within each socio-economic group. Furthermore, an analysis of variance (ANOVA) was employed to assess differences in parental involvement and academic performance among the three socio-economic groups. Tukey's post-hoc test was conducted to perform pairwise comparisons, with a significance level set at $\alpha = 0.05$.

Results:

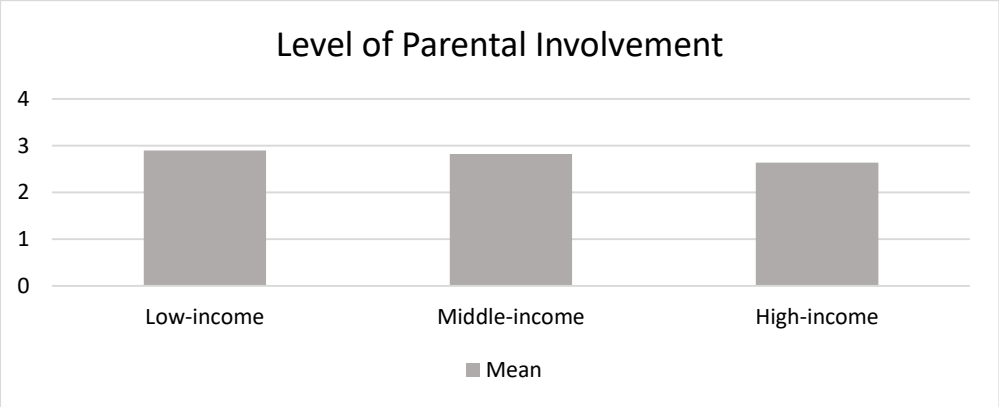
Table 1: Correlation between Parental Involvement and Academic Performance among Different Socio-Economic Groups

Socio-Economic Group	Correlation (r)	p-value
Low-Income	0.02	0.774
Middle-Income	0.10	0.272
High-Income	-0.19	0.439

Note: All correlations were not statistically significant ($p > 0.05$).

For the low-income group, the correlation coefficient (r) was 0.02, t(DF) = 0.287, p = 0.774 (see Appendix B. Table 1). The correlation coefficient suggests a very weak positive relationship between parental involvement and academic performance among the low-income group. The relationship is practically negligible. Also, the t-value is small, indicating that the correlation is not statistically significant and with a high p-value, we fail to reject the null hypothesis. The results support the null hypothesis, indicating that there is insufficient evidence to conclude a meaningful relationship between the variables in this group.
For the middle-income group, the correlation coefficient (r) was 0.10, t(DF) = 1.104, p = 0.272. The correlation coefficient suggests a weak positive relationship between parental involvement and academic performance among the middle-income group. However, the strength of the relationship is still considered relatively low. And although the t-value is small to moderate, it is not statistically significant. Finally, the p-value is relatively high, suggesting weak evidence against the null hypothesis. All this indicate that there is insufficient evidence to reject the null hypothesis, implying no meaningful relationship between the variables in this group.
For the high-income group, the correlation coefficient (r) was -0.19, t(DF) = -0.793, p = 0.439. The correlation coefficient suggests a weak negative relationship between parental involvement and academic performance among the high-income group. It indicates that as parental involvement increases, academic performance tends to decrease, but the relationship is still considered relatively weak. The t-value is small, indicating that the correlation is not statistically significant. With a high p-value, we fail to reject the null hypothesis. The results support the null hypothesis, suggesting insufficient evidence to conclude a meaningful relationship between the variables in this group.
In summary, the correlation results for all three socio-economic groups indicate either very weak or weak relationships between parental involvement and academic performance. Additionally, none of the correlations are statistically significant based on the t-values and p-values. Therefore, the null hypothesis is supported for all groups, suggesting no significant relationship between parental involvement and academic performance within each socio-economic group in your research.

Figure 1: Mean of Parental Involvement Level among Three Socio-Economic Groups



Using ANOVA, with F=4.752 and p-value lesser than 0.05, the low-income group generated a mean of 2.90, followed by the middle-income group with a mean of 2.82 and the high-income group with a mean of 2.64. (See Appendix B. Table 2.)

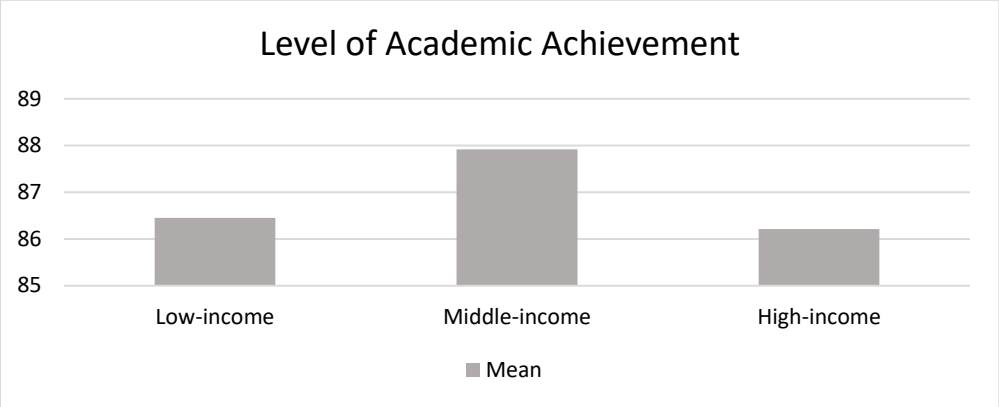
Table 2: Mean Differences in Parental Involvement among Three Socio-Economic Groups

Comparison	Mean Difference	p-value
Low-Income vs. Middle-Income	0.084	0.15
Low-Income vs. High-Income	0.267	0.02
Middle-Income vs. High-Income	0.183	0.16

Note: The mean difference was statistically significant for Low-Income vs. High-Income groups (p = 0.02), while other comparisons were not significant (p > 0.05).

With a p-value greater than 0.05, we do not have sufficient evidence to conclude a significant difference in the level of parental involvement between the low-income and middle-income groups and between the middle-income and high-income groups. Therefore, the difference in means is not statistically significant.
However, with a p-value less than 0.05, we have sufficient evidence to conclude a statistically significant difference in the level of parental involvement between the low-income and high-income groups. Therefore, the difference in means is considered statistically significant.

Figure 2: Mean of Academic Achievement Level among Three Socio-Economic Groups



Using ANOVA, with F=5.026 and p-value lesser than 0.05, the low-income group generated a mean of 86.45, followed by the middle-income group with a mean of 87.92 and the high-income group with a mean of 86.21.(See Appendix B. Table 3.)

Table 3: Mean Differences in Academic Performance among Three Socio-Economic Groups

Comparison	Mean Difference	p-value
Low-Income vs. Middle-Income	1.47	0.01
Low-Income vs. High-Income	0.24	0.97
Middle-Income vs. High-Income	1.71	0.23

Note: The mean difference was statistically significant for Low-Income vs. Middle-Income groups (p = 0.01), while other comparisons were not significant (p > 0.05).

The p-value of 0.01 is below the specified alpha level of 0.05, indicating a statistically significant difference in academic achievement between the low-income and middle-income groups. The Tukey's post-hoc test reveals a significant difference between the low-income and middle-income groups, with the middle-income group having a higher level of academic achievement.
Meanwhile, the high p-value of 0.97 suggests that there is no statistically significant difference in academic achievement between the low-income and high-income groups. Therefore, the difference in means is not considered statistically significant.
Lastly, the p-value of 0.23 is above the specified alpha level of 0.05, indicating no statistically significant difference in academic achievement between the middle-income and high-income groups. Therefore, the difference in means is not considered statistically significant.

Discussion:

The present study aimed to examine the connections between parental involvement and the academic achievement of Grade 10 high school students across different socio-economic groups. The results shed light on the research questions and provide insights into the relationship between parental involvement, socio-economic status, and academic performance.
For the first question, the analysis of correlations between parental involvement and academic performance within each socio-economic group did not yield statistically significant results. This finding is consistent with previous studies that found weak or inconsistent associations between parental

involvement and academic outcomes (Hill et al., 2004; Fan & Chen, 2001). These results suggest that factors other than parental involvement may play a more prominent role in determining academic performance among Grade 10 students across different socio-economic groups.

Secondly, the analysis revealed a significant difference in parental involvement between low-income and high-income groups, with the low-income group higher than the high-income group. This finding is consistent with previous research that suggests socio-economic disparities can influence parental involvement levels (Flouri& Buchanan, 2003). Low-income families may face various economic and social challenges but that does not hinder their ability to engage actively in their child's education. On the other hand, high-income familiesthough have more resources at hand, may have not the time and opportunities to actively participate in their child's academic life.

However, no significant differences in parental involvement were found between the low-income and middle-income groups, as well as between the middle-income and high-income groups. This suggests that parental involvement may not solely be determined by socio-economic status but may also be influenced by other factors, such as cultural beliefs, family dynamics, and personal values (Desforges&Abouchaar, 2003).

Finally, the results of the third question revealed a significant difference in academic performance between the low-income and middle-income groups. This finding is consistent with previous research that suggests a socio-economic achievement gap in education (Reardon, 2011). Students from low-income backgrounds often face challenges such as limited access to educational resources, inadequate school facilities, and a lack of support systems, which can contribute to lower academic performance compared to their middle-income counterparts. However, no significant differences in academic performance were found between the low-income and high-income groups, as well as between the middle-income and high-income groups. This may be attributed to various factors, such as the quality of education received, individual motivation, and personal circumstances, which can influence academic performance independently of socio-economic status (Sirin, 2005).

Limitations

Several limitations should be considered when interpreting the findings of this study. First, the sample size for the high-income group was limited, which may have affected the generalizability of the results. Future research should aim to include a larger sample size of high-income students to provide a more comprehensive understanding of the relationship between parental involvement, socio-economic status, and academic performance.

Second, the study relied on self-reported measures of parental involvement and academic performance. Self-report measures are subject to response biases and may not capture the full extent of parental involvement or accurately reflect academic performance. Future studies could consider incorporating multiple methods of data collection, such as observational measures and objective assessments of academic achievement.

Third, this study focused solely on Grade 10 students from one public school and one private school. The findings may not be generalizable to students in other grade levels or attending schools in different settings. Future research should include a broader range of grade levels and diverse school settings to capture a more comprehensive understanding of the relationship between parental involvement, socio-economic group, and academic achievement.

Conclusion

This study aimed to examine the connections between parental involvement and the academic achievement of Grade 10 high school students across different socio-economic groups. Through the analysis of data collected from 350 participants, several key findings emerged.

First, the results indicated that there is no significant relationship between parental involvement and academic performance among the different socio-economic groups. The findings do not suggest that higher levels of parental involvement are associated with improved academic achievement. However, this

does notunderscore the importance of parental engagement in supporting students' educational journey and fostering positive outcomes.

Second, the study revealed a significant difference in the level of parental involvement among the three socio-economic groups. Specifically, the low-income group demonstrated the highest level of parental involvement, followed by the middle-income group, while the high-income group exhibited comparatively lower levels of parental involvement. These findings highlight the need for targeted interventions and support programs to enhance parental involvement, particularly among high-income families, to ensure equitable educational opportunities for all students. Third, the research findings indicated a significant difference in academic performance among the three socio-economic groups. The middle-income group exhibited the highest mean academic achievement, followed by the low-income group, while the high-income group showed slightly lower academic performance. These results emphasize the complex nature of socio-economic disparities and their impact on academic outcomes. Further research is needed to explore the underlying factors contributing to these differences and develop strategies to address them effectively. In conclusion, this study provides valuable insights into the connections between parental involvement, socio-economic status, and academic achievement among Grade 10 students. The findings underscore the importance of fostering parental involvement across all socio-economic groups to promote academic success. By implementing targeted interventions that enhance parental engagement and provide equal educational opportunities, educators, policymakers, and parents can work together to bridge the achievement gap and support the academic growth and development of all students. It is important to acknowledge the limitations of this study. The research was conducted within a specific geographical area and focused on Grade 10 students from a limited number of schools. Therefore, caution should be exercised in generalizing the findings to broader populations. Future studies could explore a wider range of socio-economic groups and include a larger sample size to enhance the generalizability of the findings. Overall, this research contributes to the existing body of knowledge by highlighting the significance of parental involvement and socio-economic factors in shaping students' academic achievement. It provides a foundation for future research and underscores the importance of collaborative efforts among educators, parents, and policymakers to promote educational equity and enhance student outcomes.

Acknowledgements:

We would like to express our sincere gratitude to our esteemed professors, Dr. Elizabeth M. Sagubo, MAED, PhD; Dr. Jennifer M. Dindin, PhD Mgmt.; Dr. Apollo A. Endrano, PhD Ed Mgmt.; and Dr. Anne Gertrude V. Corpuz, PhD, for their valuable contributions to this research paper. Their expertise and guidance have been instrumental in shaping our understanding and enhancing the quality of our work.

We are grateful for the knowledge and insights they have shared, which have significantly influenced the direction and depth of our study. Their expertise in their respective fields has enriched our research and strengthened our arguments. We appreciate their dedication to academic excellence and their commitment to mentoring and supporting aspiring researchers like us. We would also like to extend our thanks to the faculty members of the university of the Cordilleras, whose courses and teachings have laid the groundwork for our research endeavors. Their dedication to imparting knowledge, fostering critical thinking, and nurturing our intellectual growth has been invaluable in shaping our academic journey. Lastly, we would like to express our gratitude to all our professors, past and present, who have contributed to our overall education and growth. Their commitment to excellence, passion for teaching, and investment in our success have made a profound impact on our academic and personal development.

References:

1. *Bautista, A. (2019). Parental involvement in Calatagan National High School: An assessment. Unpublished thesis, Batangas State University, Batangas City, Philippines.*
2. *Chapap, M. (2018). Parental encouragement and support for learning activities: Critical to children's education.*

3. *Department of Education. (2009). Department Order Memorandum No. 54, series of 2009: Guidelines governing Parents-Teachers Associations (PTAs) at the school level.*
4. *Desforges, C., &Abouchaar, A. (2003). The impact of parental involvement, parental support, and family education on pupil achievements and adjustment: A literature review. Research Report No. 433. Department for Education and Skills.*
5. *Dohner-Chávez, A. (2006). Parental involvement and academic achievement among Hispanic and non-Hispanic students. (www.csustan.edu)*
6. *Fan, X., & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. Educational Psychology Review, 13(1), 1-22.*
7. *Flouri, E., & Buchanan, A. (2003). The role of father involvement in children's later mental health. Journal of Adolescence, 26(1), 63-78.*
8. *Hill, N. E., Castellino, D. R., Lansford, J. E., Nowlin, P., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2004). Parent academic involvement as related to school behavior, achievement, and aspirations: Demographic variations across adolescence. Child Development, 75(5), 1491-1509.*
9. *Johnson, M. K., Crosnoe, R., & Elder, G. H. (2001). Students' attachment and academic engagement: The role of race and ethnicity. Sociology of Education, 74(4), 318-340*
10. *Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In R. Murnane & G. Duncan (Eds.), Whither opportunity? Rising inequality and the uncertain life chances of low-income children (pp. 91-116). Russell Sage Foundation.*
11. *Sapungan, G. S., &Sapungan, D. B. (2014). Parental involvement and academic performance: A study on secondary school students in the Philippines. Asia Pacific Journal of Multidisciplinary Research, 2(3), 60-70.*
12. *Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. Review of Educational Research, 75(3), 417-453.*

Appendix A:Survey Questionnaire

A. Demographic Information:

Name of Student:	**School:**
Grade & Section:	**Quarterly Average Grade:** Q1___Q2___Q3___Q4___ FINAL: ___
Name of Parents/Guardian: (Optional) _____	**Relationship:** *(w/ the guardian)* _____
Monthly Family Income: (*check the box that applies to your total estimated family income)* □ P9,100 to P18,000 □ P18,000 to P109,200 □ P109,200 to P182,000	

B. Survey Questions:

Directions: *The following questions ask you about your current high school education. Please check a response that indicates how you agree or disagree with each statement below.*

Please Note: *The term "parents" refers to your parents or other guardians for this questionnaire.*

	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**
1. My parents help me develop good study habits.				
2. My parents encourage me to get good grades.				

3. My parents were strict when it came to school-related activities.				
4. My parents checked to see if I had homework.				
5. My parents attended parent-teacher conferences like PTA meetings, card-giving, and awarding ceremonies				
6. My parents limit my TV/computer/gadget screen time at home.				
7. My parents attended events like "Brigada Eskwela", "Family Day" or workshops.				
8. My parents show support for my extracurricular activities such as joining school clubs, sports, competitions, etc.				
9. My parents volunteer on helping with activities at school.				
10. My parents ensure that I have a quiet place at home where I can complete schoolwork.				
11. My parents seemed to be proud of me when I received good grades in school.				
12. My parents bring home learning or post-secondary materials for me to learn or study (e.g., books, videos, magazines, brochures)				
13. My parents help me with academic skills I am struggling with by tutoring or providing other tutors at home.				
14. My parents make sure that I have a way to get to school in the morning and get home from school in the afternoon.				
15. My parents ensure that I have the basic daily resources I need in school like food(lunch/snacks) and school materials (paper, notebook, and pen).				
16. My parents ask me how my day at school is.				
17. My parents talk to me about my life after graduating high school.				
18. My parents write excuse letters whenever I couldn't attend school due to sickness or emergencies.				
19. My parents talk/communicate to teachers about my accomplishments or difficulties at school.				
20. My parents support fundraising programs at school and are willing to give donations or other assistance.				

Appendix B: Statistical Analysis

Table 1: Correlation Coefficients

	Low-Income	**Middle-Income**	**High Income**
Pearson	0.02	0.10	-0.19
Spearman	0.030939	0.0352353	-0.19124
Kendall	0.019221	0.0209867	-0.13499
t	0.287	1.104	-0.793
p-value	0.774	0.272	0.439

Table 2: Parental Involvement ANOVA Single Factor

Description					Alpha	0.05		
Group	*Count*	*Sum*	*Mean*	*Variance*	*Ss*	*Std err*	*Lower*	*Upper*
Low	198	575	2.90404	0.159882	31.49677	0.028633	2.847724	2.960356
Mid	132	372.2	2.819697	0.144647	18.94879	0.035068	2.750724	2.88867
High	19	50.1	2.636842	0.317734	5.719211	0.092431	2.455045	2.818639

Anova								
Sources	*Ss*	*Df*	*Ms*	*F*	*P value*	*Eta-sq*	*Rmsse*	*Omega sq*
Between groups	1.542612	2	0.771306	4.752	0.009	0.026732	0.339025	0.021047
Within groups	56.16477	346	0.162326					
Total	57.70738	348	0.165826					

Tukey hsd/kramer			Alpha	0.05	
Group	*Mean*	*N*	*Ss*	*Df*	*Q-crit*
Low	2.90	198	31.49677		
Mid	2.82	132	18.94879		
High	2.64	19	5.719211		
		349	56.16477	346	3.328566

Q test									
Group 1	*Group 2*	*Mean*	*Std err*	*Q-stat*	*Lower*	*Upper*	*P-value*	*Mean-crit*	*Cohen d*
Low	Mid	0.084	0.032012	2.634723	-0.02221	0.190898	0.15	0.106555	0.209342
Low	High	0.267	0.068423	3.905119	0.039449	0.494947	0.02	0.227749	0.663193
Mid	High	0.183	0.069904	2.61579	-0.04983	0.415536	0.16	0.232681	0.45385

Table 3: Academic AchievementANOVASingle Factor

Description					Alpha	0.05		
Group	*Count*	*Sum*	*Mean*	*Variance*	*Ss*	*Std err*	*Lower*	*Upper*
Low	198	17117	86.44949	19.771548	3894.995	0.303014	85.85351	87.04548
Mid	132	11605	87.91667	15.771628	2066.083	0.371115	87.18674	88.64659
High	19	1638	86.21053	18.28655	329.1579	0.97818	84.2866	88.13445

Anova								
Sources	*Ss*	*Df*	*Ms*	*F*	*P value*	*Eta-sq*	*Rmsse*	*Omega sq*
Between groups	182.738	2	91.36902	5.026	0.007	0.028231	0.216666	0.02255
Within groups	6290.236	346	18.17987					
Total	6472.974	348	18.6005					

Tukey hsd/kramer			Alpha	0.05	
Group	*Mean*	*N*	*Ss*	*Df*	*Q-crit*
Low	86.45	198	3894.995		
Mid	87.92	132	2066.083		
High	86.21	19	329.1579		
		349	6290.236	346	3.328566

Q test									
Group 1	*Group 2*	*Mean*	*Std err*	*Q-stat*	*Lower*	*Upper*	*P-value*	*Mean-crit*	*Cohen d*
Low	Mid	1.47	0.33878	4.33075	0.33952	2.594824	0.01	1.127652	0.344101
Low	High	0.24	0.724104	0.33002	-2.17126	2.649197	0.97	2.410228	0.056046
Mid	High	1.71	0.739784	2.306267	-0.75628	4.168562	0.23	2.462421	0.400147