A Mixed Method Study of Middle School Students' Perception of the Impact of Socio-Economic Status on Academic Intrinsic Motivation

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> The European Conference on Education 2024 Official Conference Proceedings

Abstract

Research shows that intrinsically motivated students tend to achieve higher academic growth (Mendoza, 2012). When specific populations of students are labeled "at risk", it becomes difficult for them to realize their intrinsic motivation (Ginsberg & Wlodkowski, 2019). Students identified as "at risk" tend to be from a lower socioeconomic status (Cedeño et al., 2016). Proposed study investigates the relationship between perceived socioeconomic status of students with their academic intrinsic motivation. An urban mid-western middle school with approximately 700 low-income students got equal opportunity to participate in research. 50 students with both signed student and parent consent forms were allowed to participate in the research. Mixed method research design was conducted using a survey that contained a 5point likert scale which measured academic intrinsic motivation and multiple-choice questions followed by open ended questions which measured the students' perceived socioeconomic status. Multiple choice questions included parents' employment status, income range and their educational level with three open ended questions to deepen the understanding of the choices selected by students. Parental income range was used as the parameter to measure the socioeconomic status. Open-ended questions focused on opportunities provided to students, challenges faced by them and their future goals. Linear regression analysis helped to establish no relationship between the students' perceived parental income range and their academic intrinsic motivation. However, using manual coding open-ended questions shed light on the equal opportunities provided by the school in spite of their parent's income level.

Keywords: Intrinsic Motivation, Middle School, Socioeconomic Factor

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Introduction

Student motivation is a critical element in educational success and lifelong learning. Motivation can be broadly categorized into intrinsic and extrinsic types, each influencing students' engagement and performance differently.

Intrinsic Motivation

Intrinsic motivation, the internal drive to engage in activities for their inherent satisfaction rather than for external rewards, is a crucial element in students' academic success and overall well-being. Understanding the factors that foster intrinsic motivation can have significant implications for educational practices and policies.

Factors Influencing Intrinsic Motivation

- 1) Teacher Practices and Classroom Environment: Teacher practices play a crucial role in fostering intrinsic motivation. Autonomy-supportive teaching, which includes providing students with choices, encouraging self-initiation, and acknowledging students' perspectives, has been shown to enhance intrinsic motivation (Reeve, 2009). A positive classroom environment, characterized by supportive teacher-student relationships and a sense of community, also contributes to higher levels of intrinsic motivation (Wentzel, 1997).
- 2) Parental Influence and Home Environment: Parental involvement and the home environment significantly affect students' intrinsic motivation. Parents who provide emotional support, encourage autonomy, and emphasize the importance of learning for its own sake foster higher levels of intrinsic motivation in their children (Grolnick, Ryan, & Deci, 1991). Conversely, controlling parenting practices that pressure children to perform can undermine intrinsic motivation (Assor, Kaplan, & Roth, 2002).
- 3) Socioeconomic Status: Socioeconomic status (SES) influences intrinsic motivation through access to resources, parental involvement, and stress levels. Higher SES families often have greater access to educational resources and extracurricular activities, which can promote intrinsic motivation (Gottfried, Fleming, & Gottfried, 1994). Lower SES, on the other hand, is associated with higher levels of stress and fewer opportunities for self-directed learning, potentially hindering intrinsic motivation (Evans & Kim, 2013).
- 4) Peers and Social Influence: Peers and social contexts can either bolster or diminish intrinsic motivation. Positive peer interactions and collaborative learning environments enhance intrinsic motivation by fulfilling the need for relatedness and providing opportunities for meaningful engagement (Wentzel, 2009). Conversely, negative social dynamics, such as peer pressure and competitive atmospheres, can undermine intrinsic motivation by creating anxiety and fear of failure (Ryan & Deci, 2000).

Impact of Intrinsic Motivation on Academic Outcomes

1) Academic Achievement: Research consistently demonstrates a strong positive relationship between intrinsic motivation and academic achievement. Intrinsically motivated students tend to engage more deeply with learning materials, persist longer in the face of challenges, and achieve higher academic performance (Gottfried, 1985; Deci,

Vallerand, Pelletier, & Ryan, 1991). This is because intrinsic motivation promotes a mastery-oriented approach to learning, where students focus on understanding and mastering the material rather than merely performing well on tests.

2) Cognitive Engagement and Learning Strategies: Intrinsic motivation is associated with higher levels of cognitive engagement and the use of effective learning strategies. Intrinsically motivated students are more likely to employ deep learning strategies, such as critical thinking, elaboration, and self-regulation, which enhance comprehension and retention of information (Pintrich & De Groot, 1990). They are also more likely to engage in self-directed learning, seeking out additional resources and opportunities to expand their knowledge (Zimmerman, 1990).

Challenges and Future Directions

Despite the clear benefits of intrinsic motivation, several challenges remain in fostering and sustaining it in educational settings. One major challenge is the pervasive emphasis on standardized testing and performance outcomes, which can undermine intrinsic motivation by shifting the focus from learning to performance (Ryan & Weinstein, 2009). Additionally, socio-economic disparities and unequal access to resources continue to pose significant barriers to the development of intrinsic motivation for many students (Evans & Kim, 2013).

Future research should explore strategies for promoting intrinsic motivation in diverse educational contexts, with particular attention to under-resourced and marginalized communities. Interventions that integrate culturally relevant pedagogy, provide opportunities for student choice and autonomy, and emphasize the joy and value of learning hold promise for enhancing intrinsic motivation across different student populations (Gay, 2000).

Intrinsic motivation is a vital component of student learning and achievement, influenced by a complex interplay of individual, social, and environmental factors. Understanding these influences and their impact on academic outcomes can inform educational practices and policies aimed at fostering a love of learning and lifelong engagement in education. By creating supportive and autonomy-enhancing environments, educators and policymakers can help students develop and sustain intrinsic motivation, leading to greater academic success and personal fulfillment.

Socio Economic Status

SES can be defined broadly as the access an individual has to financial, social, cultural, and human capital resources. Traditionally a student's SES has included parental educational attainment, parental occupational status, and household or family income, with appropriate adjustment for household or family composition (National Center for Education Statistics, 2012). Each of these components play an important role in determining the socioeconomic status of the student.

There is a discrepancy when comparing the median annual household income of families living in the United States with the families in with the proposed sample population. As per the data collected from (Data USA, 2018), the median annual household income of families in the sample population studied is \$41,657, which is less than the median annual income of \$61,937 across the entire United States. The study population of students belonged to lower socioeconomic status. It has been suggested that students from a lower socioeconomic level

may not be prepared for a public school system with a middle socioeconomic status orientation, and this can result in motivation and achievement issues (Aud et al., 2011).

Findings linking poverty and student academic achievement have been found. Lacour and Tissington (2011) stated the following findings in their study:

"The U.S. Department of Education (2001) found the following key findings regarding the effects of poverty on student achievement in a study conducted on third through fifth-grade students from 71 high-poverty schools: The students scored below norms in all years and grades tested; students who lived in poverty scored significantly worse than other students; schools with the highest percentages of poor students scored significantly worse initially, but closed the gap slightly as time progressed." (p.522)

Living in poverty could impact academic achievement for many reasons, like limited school resources, limited support at home, and other stressors in a student's life. Lacour and Tissington (2011) concluded their research by stating that level of income, source of income, and mother's education level all influence academic achievement.

There is extensive research indicating that students from a low-income background tend to have more gaps in achievement. Multiple studies indicate that academic achievement can be predicted by actual socioeconomic status (Cedeño et al., 2016; McKenzie, 2019). There is a relationship between stress and poverty, which can lead to a negative impact on cognition and increase academic risk (Cedeño et al., 2016). In fact, chronic stress can cause damage to the brain. Specifically, stress may cause a decrease in learning capacity if the hippocampus is damaged (McKenzie, 2019).

There are several ways the stress of having a low socioeconomic background interferes with school performance. Some of these include low test scores, behavioral and emotional problems, and mental health issues (McKenzie, 2019). Despite the challenges, students from low socioeconomic backgrounds can still succeed. With proper interventions and program implementations, these students can grow from their adversity and achieve academically (Cedeño et al., 2016).

Additional challenges are faced by the students in lower socioeconomic homes. Families who live in impoverished neighborhoods are typically in underfunded school districts (Quillian, 2017). Socioeconomic background can determine the school a student attends and what academic opportunities are available to them (Sirin, 2005). The less funding a school has, the fewer resources are available. Therefore, family socioeconomic status plays an important aspect in academic success.

Statement of Purpose

Intrinsic motivation and socioeconomic status (SES) are intricately linked in the context of academic achievement and overall well-being. Intrinsic motivation refers to engaging in activities for their inherent satisfaction and personal rewards, rather than for some separable consequence or external reward. SES, encompassing income, education, and occupation, can significantly influence an individual's environment and opportunities, thereby impacting their intrinsic motivation.

Influence of Socioeconomic Status on Intrinsic Motivation

- 1. Access to Resources: Higher SES often provides better access to educational resources, extracurricular activities, and supportive environments, which can foster intrinsic motivation by allowing individuals to pursue interests and passions freely. Conversely, lower SES can limit access to these resources, potentially stifling the development of intrinsic motivation (Deci & Ryan, 2000).
- 2. Parental Involvement and Support: Families with higher SES are often more able to provide consistent support and encouragement for their children's academic and extracurricular activities. This supportive environment can enhance intrinsic motivation by affirming the value of learning and personal growth (Grolnick & Ryan, 1989).
- 3. Stress and Psychological Well-being: Lower SES is frequently associated with higher levels of stress and fewer psychological resources, which can negatively impact intrinsic motivation. High stress levels can detract from the focus and energy needed for intrinsically motivated pursuits (Evans & Kim, 2013).
- 4. Expectations and Beliefs: Socioeconomic background can shape expectations and beliefs about education and achievement. Higher SES families often instill a sense of entitlement and expectation of success, which can promote intrinsic motivation. In contrast, lower SES families might emphasize survival and immediate economic contributions over long-term educational pursuits, potentially diminishing intrinsic motivation (Lareau, A., 2011).

Intrinsic motivation is deeply influenced by the socioeconomic context in which an individual is situated. Higher SES typically affords greater access to resources, supportive environments, and positive expectations, all of which can enhance intrinsic motivation. On the other hand, lower SES can pose significant barriers to the development and sustenance of intrinsic motivation due to resource limitations, increased stress, and different cultural values related to education and success.

Understanding the interplay between intrinsic motivation and SES is crucial for developing effective educational policies and interventions aimed at fostering motivation and achievement across diverse socioeconomic backgrounds. This leads to the development of the research question:

Research Question - What is the relationship between student perceived socioeconomic status and their academic intrinsic motivation?

Null Hypothesis 1: There is no significant relationship between perceived socio economic and academic intrinsic motivation.

Directed Hypothesis 1: There is a significant relationship between perceived socio economic and academic intrinsic motivation.

The purpose of the current research is to determine if perceived socio-economic status and academic intrinsic motivation influence each other, and to what extent.



Note: The bold lines represent the variables under investigation and the dotted line represents the possible extension of the current research.

Figure 1: A Proposed Relationship of Possible Variables That May Connect Intrinsic Academic Motivation With Academic Achievement

Theoretical Framework

The four theoretical framework that address the impact of environmental factors like socioeconomic factor (income level of the parents) on their academic intrinsic motivation are Self-Determination Theory (Gagne & Deci, 2005), Social Cognitive Theory (Schunk & DiBenedetto, 2020), Achievement Motivation Theory (Elliot & Harackiewicz, 1996), and Ecological Systems Theory of Development (Leonard, 2011).

Methods

Research Design

A mixed-method research design was used to understand the relationship between the students perceived socio-economic status and their academic intrinsic motivation. A Likert scale survey was used to measure the academic intrinsic motivation of the students and a multiple-choice survey followed up with the open-ended questions was developed to measure the perceived socioeconomic status of the students. The concurrent embedded mixed method design was used to understand the relationship between the two variables and also provided a deep insight into the reason for students' choice in the survey and multiple choice questions. Having both qualitative and quantitative data allows a more detailed and reliable resolution of the research questions.

The concurrent embedded design allowed both quantitative and qualitative data to be collected at the same time in one setting. This approach justifies embedding qualitative questions as it will enable participants to give reasoning for the measured variables, which cannot be done with quantitative data alone. The sequence of conducting the qualitative or quantitative research does not matter while working with this method. It is also beneficial to collect the data at one time instead of disturbing the routine of teachers and students on two occasions (Creswell, 2008).

To explore the impact of perceived socioeconomic factor on the students' intrinsic motivation, linear regression was used. Manual coding was used for the open-ended questions.

Setting and Sample Population

A convenience sample of approximately 700-800, 7th and 8th grade students attending a Midwestern suburban public middle school were asked to serve as the research population. The student population consisted of 50% male and 50% female students. All students were given an equal opportunity to participate in the survey. Students were given an assent form (Appendix B) to sign if they chose to participate and a consent form (Appendix C) was also sent to parents/guardians of those students. One month was given to the students to get both

forms signed. The students with both forms signed were allowed to participate in the study. To increase the participation of students, an incentive was given to the students. The entire class received a snack box if 50% of the students participated in that class. A sample pool of N=50 was targeted from the convenience pool of 700-800. The survey was administered by the advisory teachers of the students. The advisory class did not interrupt instructional hours.

Instrumentation

A 5-point Likert scale survey was used to measure academic intrinsic motivation (Appendix A). One survey with two parts (A and B) was used to measure the impact of studentperceived socioeconomic factor on academic intrinsic motivation. Part A measures motivation with the American Motivation Scale (AMS) first validated by Vallerland et al., 1992. Part B measures household income and education as factors for socioeconomic status ("Community needs assessment questionnaire survey," n.d.) (Hanes, 2008). Part A contains 16 questions and Part B contains seven questions including three open-ended responses. In open-ended questions, students were asked to estimate their household income on an incremental scale. Open-ended questions provide more information on their perspectives on academic goals, achievements, and challenges. To maintain the anonymity of the students/participants, the survey was collected with no student identification.

Data Collection

Students submitting both signed parent's consent and student's assent forms were allowed to participate in the research. The study was conducted in the advisory class which was already embedded in the schedule. Advisory teachers were given the log to keep the records of the students submitting both forms. Once forms were collected with the teacher's log, surveys were given to the advisory teachers for those who submitted both forms.

Those students completed the survey at the same time in their advisory class without any interruption. The advisory class was 30 minutes long. To maintain the authenticity of the students' perception of their parents' income level, no student was allowed to take the survey home, even if they were not finished. The advisory teacher did not paraphrase or help the students while filling out the survey to maintain the reliability and truthfulness. Data was collected once in an academic year from all the students. The survey was reviewed by IRB to protect the rights and the welfare of the students involved in the research.

Results

Descriptive statistics were calculated using the program SAS (SAS on demand for academics). AVGAIM (average academic intrinsic motivation) shows the average score academic intrinsic motivation. Perceived income was assigned a corresponding number to the letter the participants chose to represent the income range. For example, a) 10,000-20,000 was assigned the number 1. The responses left blank, or when a participant was unsure, 0 was assigned. The label given to perceived income was INCOME.

Three participants' surveys were excluded because their surveys were left incomplete. The remaining 47 surveys were used to calculate the mean and standard deviation of AVGAIM and INCOME.

The descriptive statistics for average perceived income and academic intrinsic motivation score are shown in Table 1. The mean for INCOME is 3.02. The mean for AVGAIM is 3.80. There was a high standard deviation for INCOME. This suggests data was spread out from the mean and there is a large amount of variation in the participants' perceived household income.

Variable	Mean	Std Dev	Minimum	Maximum	Ν
INCOME	3.02	2.67	0	9.00	47
AVGAIM	3.80	0.66	2.00	5.00	47

Table 1: Descriptive Statistics

A linear regression analysis was run using AVGAIM as the dependent variable, INCOME as the classification variable.

The linear regression model has one intercept (β 0) and one slope (β 1): AVGAIM = β 0 + β 1*INCOME

The least squares summary and analysis of variance are shown in Appendix D. The p value from the analysis of variance was 0.06 which is greater than 0.05. This means the null hypothesis cannot be rejected. However, since it is close to 0.05, the parameter of estimates, shown in Table 2 was required.

Parameter Estimates						
Parameter	DF	Estimate	Standard	t value	Pr > t	
			Error			
Intercept	1	0.740721	1.033956	0.72	0.4786	
INCOME 0	1	0.272285	0.460660	0.59	0.5584	
INCOME 1	1	0.605106	0.491631	1.23	0.2268	
INCOME 2	1	0.319531	0.484118	0.66	0.5137	
INCOME 3	1	0.342931	0.555511	0.62	0.5411	
INCOME 4	1	-0.167662	0.520287	-0.32	0.7492	
INCOME 5	1	0.123791	0.499580	0.25	0.8058	
INCOME 6	1	0.147658	0.532331	0.28	0.7832	
INCOME 7	1	-0.914378	0.719813	-1.27	0.2126	
INCOME 8	1	-0.291095	0.718288	-0.41	0.6878	
INCOME 9	0	0	-	-	-	

Table 2: Parameter Estimates

For all tests, a Type 1 error rule of 0.05 or 5% was used. If p-value < 0.05 then reject the null hypothesis (Ho). Overall, AVGAIM does not have a significant relationship with INCOME since each p-value for income was higher than 0.05, which means that the academic intrinsic motivation of the students is not related to the parent's income level.

Test for the slope of INCOME: Ho: $\beta 2 = 0$ Ha: $\beta 2 \neq 0$ Conclusion: Since all income levels had a p-value greater than 0.05, we fail to reject the Ho and conclude the slope is not significantly different from zero. Income does not affect AVGAIM.

The overall result of the research question is there is no significant relationship between students' perceived socioeconomic factor (parental income) and their academic intrinsic motivation.



Figure 2: Actual Relatedness of the Variables

Conclusion

Limitations

It was a convenient sample as one of the researchers was teaching at that school and due to the narrow sample, the result of the research cannot be considered generic. There might be self-selection of higher academic intrinsically motivated students since the survey was not part of the grade assignment.

Delimitations

Several delimitations are considered. One of the delimitations was, to increase the participation of students, an incentive was given to the students. Another delimitation was the students' perspectives on their parental income and academic intrinsic motivation tended to change.

Implications for Practice

This study can help to strengthen relationships and bring awareness between schools, families, and communities. Understanding the impact of student-perceived parental income on their academic intrinsic motivation can help parents and educators remove their biases to create an inclusive environment and bring equity to the class.

Appendix A

Student Survey

The University of Missouri-St. Louis

STUDENT SUCCESS SURVEY

Part A - Academic Motivation Survey: Intrinsic Motivation measurement

WHY DO YOU GO TO SCHOOL? Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons why you go to school. PLEASE SELECT ONE NUMBER PER ITEM USING THE KEY BELOW.

1 = Not at all 2 = Not very much 3 = A little 4 = Certainly 5 = Definitely

	1	2	3	4	5
1. I need at least a high school diploma in order to find a high- paying job later on.					
2. I experience satisfaction while learning new things.					
3. I think that a school education will help me better prepare for the career I have chosen.					
4. I really like going to school.					
5. I really feel that I am wasting my time in school.					

6. For the pleasure I experience while performing better than my expectations.			
7. To prove to myself that I am capable of completing my high- school diploma.			
8. Eventually it will allow me to enter the job market in a field that I like.			
9. For me, school is fun.			
10. I once had good reasons for going to school; however, now I wonder whether I should continue.			
11. When I succeed in school I feel important.			
12. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.			
13. It will help me make a better choice regarding my career orientation.			

14. For the pleasure that I experience when I take part in discussions with my teachers.			
15. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.			
16. In order to have a better salary later on.			

Part B – Socioeconomic Status Survey

1) What is your age: _____ What grade are you in:_____

2) Educational Background of the guardian/caretaker: SELECT THE HIGHEST EDUCATION FOR THE SAME PERSON YOU CHOSE IN PART A.

a)_____ Elementary

b)_____ Middle School

c)_____High School graduate

d)_____ Some college

e)____College Graduate

f)_____ Never go the opportunity to go to school

3) What is the employment status of your guardian/caretaker? SELECT ONLY ONE FOR THE SAME PERSON YOU CHOSE IN PART A.

a)_____ Full time d)_____Unemployed

 b_____Part Time
 e)_____Not working (Retired)

c)____Seasonal

4) What is your parent's or guardian's occupation/job? _____

5) How many people live where you stay? _____

6) Please select the appropriate range of family annual Income: (in dollars) SELECT ONLY ONE RANGE.

a) 10,000-20,000	f) 60,001-70,000
b) 20,001-30,000	g) 70,001-80,000
c) 30,001-40,000	h) 80,001-90,000
d) 40,001- 50,000	i) greater than 90,000
e) 50,001-60,000	

Open Ended questions:

1. How does our school provide equal opportunities to all students regardless of how much money their parents make? If our school does not provide equal opportunities to all students, give examples.

2. What do you want to accomplish by attending school?

3. Explain the challenges you face while trying to be successful in school?

Appendix **B**

Student Assent Form

Assent to Participate in Research Activities (Minors) The Perception by Middle School Students of the Impact of Parent Involvement and Socioeconomic Status on Their Intrinsic Motivation

1. Hi, our names are Pallavi Aggarwal and Taylor Lawson Smith. We are college students.

2. We are asking 800 students, including you, to take part in a research study because we are trying to learn more about how the involvement of your parents/guardians and social standing impact your motivation in school work.

3. If you agree to be in this study, you will be asked some questions that affect your motivation in school. The questions include how involved your parent(s) or other adult is in your school work, how much you think your parents make, and the education background of your parent/guardian. It will take about 30 minutes. You will take it one time during the advisory class.

4. Being a part of this study should not harm you in any way. Your schooling and grades will not be impacted by choosing to participate in this study.

5. You will probably not get any direct benefits from being in this study but you might enjoy knowing that your honest answers will help teachers teach class in ways that help you to learn.

6. Please talk this over with your parents before you decide whether to participate. We will also ask your parents to give their permission for you to take part.

7. If you don't want to be in this study, you don't have to. Being in this study is up to you, and no one will be upset if you don't want to participate or if you change your mind later and want to stop. Your schooling and grades will not be affected by choosing to not participate in this study.

8. You can ask any questions that you have about the study. If you have a question later that you didn't think of, you can call us at 636-290-6891(Taylor Lawson-Smith) or (252)-290-0478 (Pallavi Aggarwal).

9. Signing your name at the bottom means that you will be in this study. You will be given a copy of this form after you have signed it.

Participant's Signature	Date	Participant's Printed Name
Participant's Age	Gra	ade in School

Appendix C

Parent Informed Consent Form

Informed Consent for Participation in Research Activities

The Perception by Middle School Students of the Impact of Parent Involvement and Socioeconomic Status on Their Academic Intrinsic Motivation

Participant HSC Approval Number

Principal Investigator: Pallavi Aggarwal / Taylor Lawson-Smith PI's

Phone Number: (252)-290-0478) / (636)-290-6891

Summary of the Study

The general purpose of this study is to identify the factors that lead to the development of the academic intrinsic motivation in middle school students.

Neither the statistical analyses of anonymous survey rankings by the researchers nor the completion of an open-ended questionnaire by participants poses a significant risk to the physical, psychological, social, economic, or legal well-being of the participants.

We will take multiple precautionary measures to protect the privacy of participants. As part of this effort, the identity of participants will not be revealed in any publication or presentation that may result from this study. No identifying information will be collected by the survey and questionnaire so that at no time will the researchers be able to identify a particular student, their responses, or their participation in this study.

1. Your child is invited to participate in a voluntary research study conducted by Pallavi Aggarwal and Taylor Lawson-Smith, and it is under the supervision of Dr. Charles Granger.

2. a) Your child's participation will involve completing a survey that asks students to respond to the impact of their perceived parental involvement and socioeconomic status on their intrinsic motivation. This is a Likert Scale survey with open-ended questions after the rankings. The survey will be administered during one advisory period to limit the disruption of the school day. There will be no incentive to those who choose to participate, but this information could be used in the future to help educators build classroom environments that will be more equitable in advancing student academic intrinsic motivation. There is no foreseeable risk. Approximately 800 students may be involved in this research at the University of Missouri-St. Louis

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b) The amount of time involved in your student's participation will be 30 minutes during one advisory period.

3. There is a loss of confidentiality risk in that names of students who have both sign parent consent forms and their own student assent forms will be collected. No names or other identifying information will be collected on surveys. Student names are only collected so researchers can distribute surveys to students who have permission.

4. There are no direct benefits for your child participating in this study, however their participation may lead to benefits to education. The results of this study may reveal information that educators can use to improve behavioral, social and academic interventions for all students.

5. Your child's participation is voluntary and you may choose for them not to participate in this research study or withdraw your consent at any time. Your child will NOT be penalized in any way should you choose not to allow them to participate or withdraw.

6. We will do everything we can to protect your child's privacy. As part of this effort, your child's identity will not be revealed in any publication that may result from this study. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection) that would lead to disclosure of your data as well as any other information collected by the researcher.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Pallavi Aggarwal at (252-290-0478), Taylor Lawson-Smith at (636-290-6891) or the Faculty Advisor, (Dr. Charles Granger at (314-516-6220). You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research, at 314-516-5897.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I hereby consent to my participation in the research described above.

Participant's Signature_____ Date _____

Signature of Investigator or Designee_____ Date _____

Appendix D

Table 3

Least Squares Summary

LEAST SQUARES SUMMARY						
STEP	Effect Entered In	Number Parms In	SBC			
0	Intercept	1	-36.8617*			
1	INCOME	12	-5.4405			

*Optimal Value of Criterion

Table 4

Analysis of Variance

Analysis of Variance						
Source	DFSum ofMeanF valuePr					
		Squares	Square			
Model	12	8.07423	0.67285	1.96	0.0619	
Error	34	11.69128	0.34386			
Corrected	46	19.76551				
Total						

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