

The Effect of Parenting Styles, Birth Order, Income, and Number of Parents in the Home  
and how it affects GPA

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Math Senior Seminar  
May 2023

## **Abstract**

Previous research suggests that family makeup, parenting styles, and socioeconomic status affect students' GPAs. The purpose of this study was to research parenting styles, birth order, income, and the number of parents in the home and how this affects students' GPAs at a college preparatory high school. High school students in grades 9th to 11th responded to a parenting style, family makeup, and income survey. Students' survey results were then compared with their GPAs. Authoritarian parenting styles had a negative relationship with GPA while both permissive and authoritative parenting styles had no relationship. The older a child was in their family also had a negative relationship with a student's GPA. Both income and the number of parents in a home had no relationship. While our results show that an authoritarian parenting style negatively impacts GPA, this may be because of the pandemic affecting students' response to their caregiver's parenting styles and that parents have little to no experience when they have their first child. More research may be needed on the effect of the pandemic on parenting styles and academic performance.

## Introduction

Our parents structure our homes throughout our childhood and into our teens, but are their efforts actually helping us succeed academically? A statistic from Kids Count Data Center shows that 64% of black children live in single-parent homes (1). Living in a single-parent home can be more detrimental to a student's success than a dual-parent home (2). One reason is that there is only one parent so there would only be one parenting style in the home. Parenting styles are "parents' attitudes and behaviors toward children and an emotional climate in which the parent's behaviors are expressed" (3). Parenting styles are put into three categories: authoritative, authoritarian, and permissive, with different styles possibly influencing children's outcomes (4). Another factor that might affect student outcomes is the order they were born in. If there is a way for parents to do what is best for their children, then they should know. In our study, we gave students questionnaires to understand their parents parenting styles, birth order, and how many parents they live with.

The number of parents in a household can affect a student's GPA. Abudu and Fuseini studied whether high school students in single-parent homes have a different academic outcome than those in two-parent homes. They collected GPAs from 170 students: 100 with two parents and 70 with one parent, and gave them a questionnaire. This questionnaire asked students about their parents and their involvement in school (2). They found that single-parent homes are detrimental to a student's GPA. However, females in one-parent homes are better off than males in one-parent homes. According to the adolescent participants, ten percent of single parents are highly involved in their children's education, while it was 42% for dual-parent households (2). This is important to my study because we looked at home makeup and how it affects students' GPAs. Importantly, this study was done in Ghana, so cultural and societal differences from the US might mean the results may differ.

Missing a parent in the home can be detrimental to a student's academic performance. Barajas researched the effects of single-parent homes on academic performance. They found that students in single-parent homes score lower on standardized and cognitive function tests, receive lower GPAs, and complete fewer years of school compared to those in two-parent homes (5). Males' motivation tends to decline after just 5 years of living in the home, while females' motivation tends to stay the same. Spending time in a single-parent home is generally detrimental to all regardless of race. However, Caucasian students in single homes are similar to those of students in two-parent homes (5). The researcher also noted that not all students do poorly in single-parent homes. Factors like a network of community, strong parent-child communication, and self-governance can help students in single-parent homes have better academic outcomes (5). The researcher suggested that future researchers look at other factors that can contribute to students' academic achievement instead of just looking at the number of parents in the home (5). This makes our project special because we looked at single vs dual parents but also other factors that may contribute to students' academic achievement.

Students' GPAs may be affected by their school culture and parents' parenting style. Myers and Scott conducted a study to see if school climate and parenting styles impact students' GPAs. To test this they collected students' GPAs and administered a school climate survey, and a Parental Authority Questionnaire. The questionnaire helped the researchers to understand the parenting styles of the students' parents. Their participants were 61 students (24% male and 76% female) in 9th to 11th at The Neighborhood Academy (4). They found that school climate does not affect a student's GPA, which is inconsistent with previous research. There was a significant positive relationship between GPA and authoritarian and authoritative parenting styles. Permissive parenting had no connection. Prior research

showed that authoritative parenting had the most positive connection to GPA, but Myers and Scott found that authoritarian parenting has the most positive relationship (4). This study used very similar participants to ours considering that we researched at the exact location.

The way a parent raises their child can have an effect on their academics, self-efficiency, and self-regulated learning. Researchers collected questionnaires completed by participants about their parents' parenting style, self-efficiency, and self-regulated learning. The participants were 91 students from 2 different schools: 53.8% female and 46.2% male (6). They found that most participants (86%) had parents that practiced authoritative parenting. Authoritative parenting also had a significant positive effect on students' academic performance and self-efficacy. Authoritarian parenting also had a positive effect on students' academic performance and self-efficacy but it was not significant. On the other hand, permissive parenting has a significant negative effect (6). In all, 78% have moderate self-efficiency, 15.4% have low self-efficacy, and 6.6% have high self-efficacy. Self-regulated learning was moderate among all groups of parenting styles (6). This is important to our study because we too studied parenting styles and academic achievement.

According to research, both birth order and personality may also affect a student's educational achievement. Ha and Tam conducted a study to test whether the stereotypes of birth order and personality had an impact on a student's GPA. To do this they collected students' grades and a Ten Item Personality Inventory (TIPI). The TIPI test helped the researcher collect the student's personality types. They had 30 participants who were either first, middle, or last born and the participants ranged from 17-24 years old (7). They found that overall birth order and students' personalities have no significant effect on a student's grades. However, there was a significant relationship between personality and academic performance in extraversion (7). For my specific project, the downside of this study was that all participants were high achievers and are not in the age range of participants that I would be using. Therefore, it is possible that birth order might affect GPA if a larger range of academic achievement scores would be included.

One's race and socioeconomic status may also influence their academic achievement. Zhang and Koshmanova took data from *High School and Beyond*, a longitudinal study of high school seniors, which gave them students' reading scores. Their participants were 600 high school students ranging from 15-18 years old (8). The students were analyzed by race/ethnicity: white (72.8%), black (9.7%), Hispanic (11.8%), and Asian (5.7%). They were also analyzed by economic class: low class (23.2%), middle class (49.8%), and upper class (27%) (8). Their results were consistent with other studies in showing that upper socioeconomic status has a higher impact on student achievement and White and Asian students perform better than Black and Hispanic students (8). Our study only has African American students so we weren't able to look at race. However, this source still gives us insight on how a student may perform academically due to their socioeconomic status.

Overall, research says that students living with single vs dual parents and parenting styles can affect students' academic achievement. The current study was conducted to see how parenting styles and single vs dual parenting affected the students in our school. In our study, we gave students from The Neighborhood Academy (TNA) surveys to help us better understand their parents' parenting styles and the number of parents that existed in their homes. We also collected information about family structure, income, and student grades.

We hypothesized that single and dual parenting would have an effect on students' GPAs. This is because research shows that single parenting has a negative effect on students' academic performance (2).

Second, we hypothesized that birth order would have a relationship to academic performance. Because our source on birth order used participants with only high performance, we are unsure of the nature of the relationship. Third, we hypothesized that authoritarian and authoritative parenting styles would have a positive effect on students' academic performance, compared to permissive parenting. This is because research suggests that an authoritarian parenting style has a significant positive correlation with academic performance (4), while other research success suggests that an authoritative parenting style has a positive correlation to students' academic performance (6). However, given the results from the two sources, we expect a difference between authoritarian and authoritative but are not sure which is better. Lastly, we hypothesized that a higher perception of income would have an impact on their GPAs. This is because research suggests that upper socioeconomic status is associated with higher academic performance (8).

## **Method**

The participants in our study are students that attend a private school in Pennsylvania, The Neighborhood Academy. There were a total of 61 students who all identify as either black or black-biracial. The students were in 9th (44%), 10th (38%), and 11th (18%) grades. There were 54% males and 46% females.

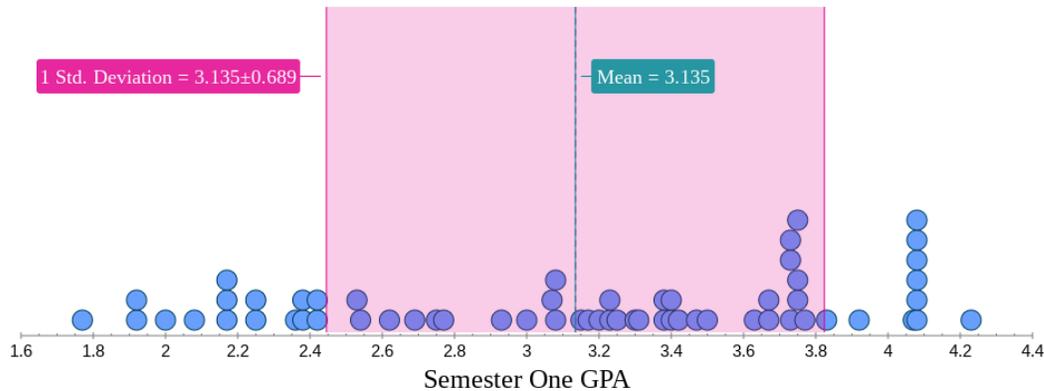
Our first survey was a preexisting survey from Buri's 1991 30-Item Parental Authority Questionnaire (PAQ). This survey asks the respondent questions about how their parents parented them while growing up to better understand what their parents' parenting style is. The respondent answers these questions on a scale of 1-5, 1 being strongly disagree and 5 being strongly agree. An example of a permissive parenting style directed question is, "My caregiver has always felt that what their children need is to be free to make up their own minds and to do what they want to do, even if this does not agree with what their caregiver(s) may want." An authoritarian directed question is, "Even if I didn't agree with them, my caregiver felt that it was for my own good if I were forced to conform to what they thought was right." An authoritative parenting-directed question is, "As I was growing up my caregiver directed the activities and decisions of the children in the family through reasoning and discipline."

We also included two separate surveys that helped us better understand their home life and perception of their household income. The home life survey asked questions pertaining to who and the number of people who lived in their homes. This survey gave us particular data like what parents they live with and their placement in sibling birth order. The perception of income survey asked what social class they believe they are in, their opinion on savings, and if they believe they have enough money or not. These kinds of questions give us an idea of how the respondent perceives their family income.

After being given permission from the counselors at The Neighborhood Academy, I visited the respondent's group counseling time to give them the survey. They were informed that it may take them between five and ten minutes to complete, but they can take as much time as needed. If a respondent was unsure about the wording of a question it was broken down and explained to them. Out of the six classes visited, two participants partially completed the survey and their responses were discarded and 13 students were not present to fill out the survey, giving us an 80% participation rate.

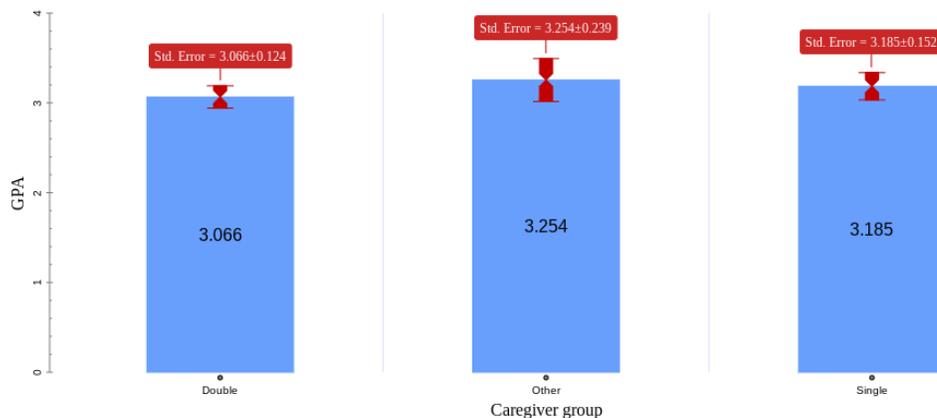
## Results

We wanted to better understand the relationship between parenting styles, family makeup, and income compared to the GPA of students at the Neighborhood Academy. To do this, we gave the respondents a short form of the Parental Authority Questionnaire (PAQ) and a brief survey asking questions about family and income during their group counseling period. We expected that dual parenting, authoritarian parenting, authoritative parenting, and high perceived income will result in a higher GPA. We think that birth order will have a non-directional effect.



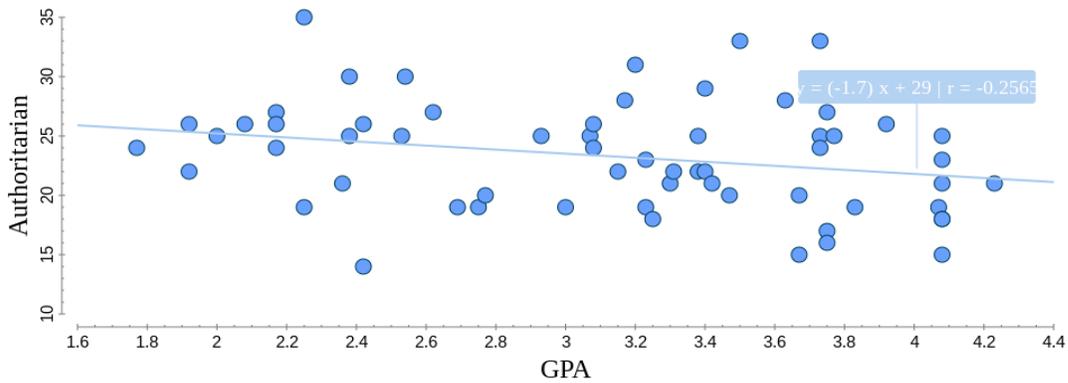
**Figure 1. Semester one GPAs of students in the study.** The mean GPA of the students was 3.135 with a standard deviation of 0.689. The graph is roughly bound-shaped and slightly skewed left. There was a cluster of people around a 3.6 GPA and right above a 4.0.

First, we hypothesized that single and dual parenting would have an effect on students' GPAs. We asked students how many and what caregivers they live with. If the students live with their mother, father, stepfather, or stepmother then they were placed in the single or double category depending on how many caregivers they had. If students lived with any other caregivers like their extended family, then they were placed in the other category. A one-way ANOVA t-test found no relationship between the number of caregivers and a students' GPA ( $F(.34) = 2, p = .71$ ). This suggests that the number of parents a student lives with has nothing to do with the outcome. There was no real difference between single parents ( $M = 3.18, SD = .69$ ), dual parents ( $M = 3.06, SD = 0.69$ ), and other ( $M = 3.25, SD = 0.71$ ).

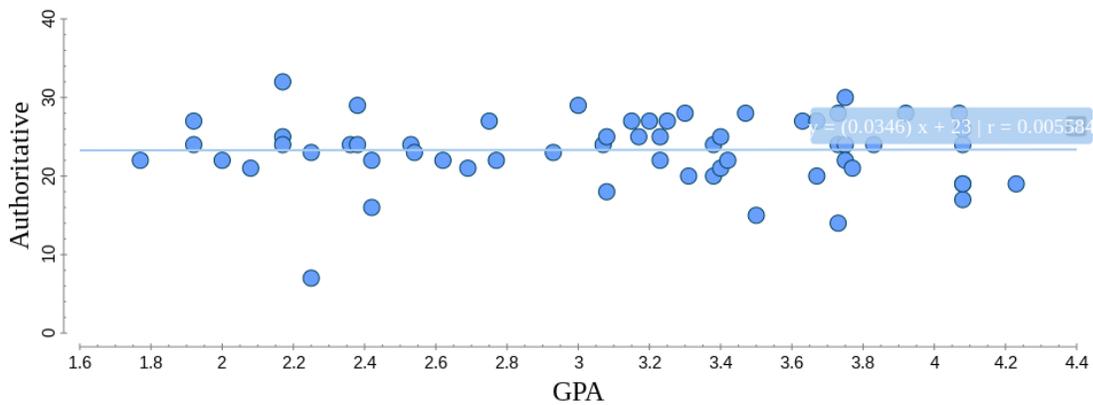


**Figure 2. Number of caregivers in a home and GPA.** GPAs are on the vertical axis and caregiver groups are on the horizontal axis (dual, other, and single)

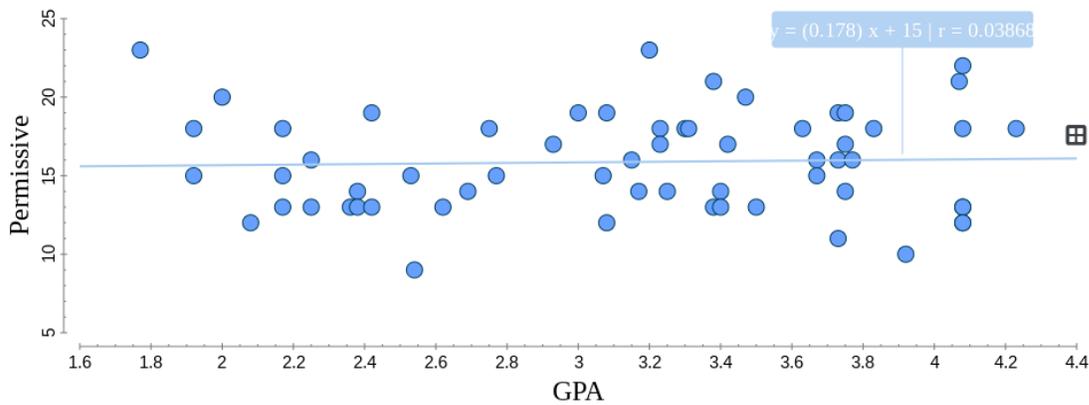
Second, we hypothesized that authoritarian and authoritative parenting styles would have a positive relationship with GPA and permissive parenting styles would have a negative relationship. To calculate these parenting styles we used the Parental Authority Questionnaire (PAQ) and took semester one GPAs. A Pearson correlation coefficient test found a significant negative relationship between authoritarian parenting style and GPA ( $r(59) = -.25, p=.02$ ). This suggests that authoritarian parenting style results in a lower GPA. The test also found no significant relationship between authoritative parenting styles and GPA ( $r(59)= .0056, p= .48$ ). This was also true for permissive parenting style and GPA ( $r(59)=.03, p= .38$ ).



**Figure 3. Negative relationship between Authoritarian parenting style and GPA.** Authoritarian parenting style results in a lower GPA. Authoritarian parenting scores (14-35) are on the vertical axis and GPA is on the horizontal axis (1.77-4.23).

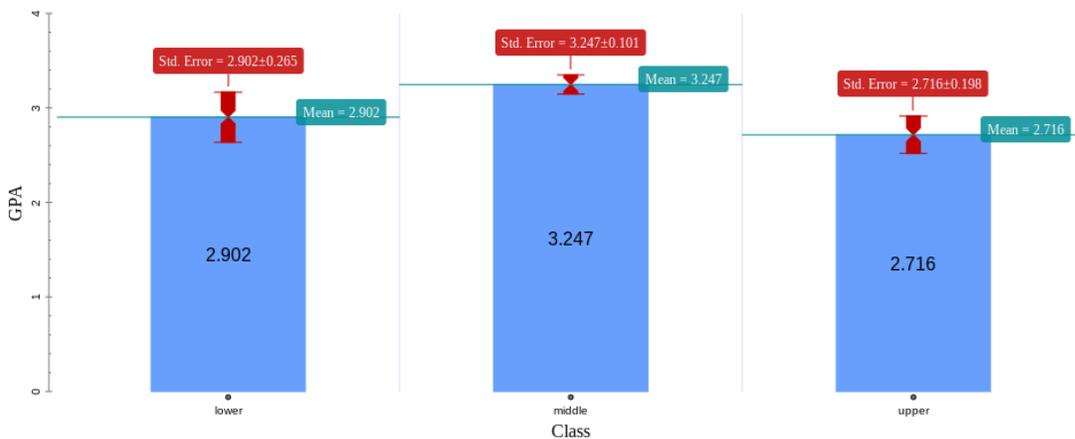


**Figure 4. Relationship between Authoritative parenting style and GPA.** There is no relationship between authoritative parenting style and GPA. Authoritative parenting scores (7-32) are on the vertical axis and GPA (1.77-4.23) is on the horizontal axis.



**Figure 5. Relationship between Permissive parenting style and GPA.** There is no significant relationship between GPA and permissive parenting style. Permissive parenting scores (9-23) are on the vertical axis and GPAs (1.77-4.23) are on the horizontal axis.

Third, we hypothesized that a higher perception of income would have an impact on their GPAs. We asked the students what economic class they think they fall into. Five students did not answer this question, so we assigned them a class based off their answers to other questions. For example, if they said they think their parents' income allows for no amount of savings and they do not have enough money, we assumed they were in the lower class. A one-way ANOVA t-test found no relationship between economic class rank and GPAs ( $F(2,58) = 2.77, p=0.07$ ). This suggests that if a student identifies as in a lower class ( $M=2.9, SD=0.64$ ), middle class ( $M=3.2, SD= 0.68$ ), or upper class ( $M=2.7, SD= 0.59$ ), it has no impact on their GPA.



**Figure 6. Perception of economic status and GPA.** There is no relationship between economic class and GPA. Economic class is on the x-axis (lower, middle, and upper) and GPA is on the y-axis.

Fourth, we hypothesized that birth order would have an effect on students' GPAs. We asked students if they were the youngest, middle, or oldest child and ranked them 1-3. 1 being the youngest and 3 being the oldest. A Spearman rank order correlation test found a negative relationship between birth order and GPAs ( $r_s(59) = -0.26, p=0.04$ ). This shows that birth order rank affects the class rank of GPA and if a student is the oldest child they tend to have a lower GPA.



**Figure 7. Negative relationship between sibling Order and GPA** The older a student is in their family results in a lower GPA. Sibling order (1-3) is on the x-axis and GPA (1.77-4.23) is on the y-axis.

## Discussion

In this study, we considered GPA and its impact on home life. Our first hypothesis was that single and dual parenting has an effect on students' GPAs. This hypothesis was not supported because the GPAs from both groups were similar (Figure 2). Second, we hypothesized that authoritative and authoritarian parenting would have a positive effect on GPA and permissive will have a negative effect. This hypothesis was not supported. We found that authoritarian parenting style has a negative effect on GPA and permissive and authoritative parenting styles have no effect (Figures 3,4,5). Third, we hypothesized that a higher perception of income would affect a student's GPA. This hypothesis was not supported because the economic classes were similar in GPA (Figure 6). Lastly, we hypothesized that birth order would have an effect on GPA. This hypothesis was supported because the older a student is in their family results in a lower GPA on average (Figure 7).

Our study found no difference in students GPA between single and dual parenting. Abudu and Fesuini found that single parenting was detrimental to a student's GPA. This negative effect was because single parents were not as involved in their students' education as dual parents were. Our study was done with students at The Neighborhood Academy where extra help is available to students. They have an advisory and tutorial period built into their school day to give students extra help with their classes. This can take partial place of a parent making the difference between single and dual parenting have little to no effect on students' GPA. Another factor to consider is selection bias. The parents of these students want them to perform well in school so they would send them to a school that provides more help. Here, both single and dual parents are likely involved in the students' education.

Contrary to our sources, we found that authoritarian parenting has a negative effect on GPA and permissive and authoritative parenting styles have none. Myers and Scott did a similar study at The Neighborhood Academy. They found that authoritative and authoritarian parenting styles had a positive effect (authoritarian more positive) and permissive parenting style had no effect on GPA. Our study and the study done by Myers and Scott were conducted at the same school but our results are very different. This can be because these studies were done a few years apart and have a different group of students. The pandemic may have also affected how students respond to parenting styles. A source from Today shows that, “7.7 million children in 2020 [didn’t] have access to care and [were] left alone and unsupervised.” Children being left at home and unsupervised may have changed the way they respond to their parent’s parenting styles. For example, someone with an authoritarian parent may not have responded as well to this parenting style because they are not used to someone constantly telling them what to do. Now, authoritarian parenting style is ineffective because it just bothers them, not actually pushes them to do anything. Parenting styles may also vary from student to student. One single parenting style will not work forever or for every student.

Research shows that higher income results in a higher GPA. However, our study found that there is no real difference in GPA between students in high or low-income families. Zhang and Koshmanova conducted a study using reading scores from *High School and Beyond* and the student's socioeconomic status. They found that students who are of a higher socioeconomic status perform better academically. *High School and Beyond* consists of data from thousands of students while The Neighborhood Academy only consists of about 200 students. Our study was done at The Neighborhood Academy where students are all held to the same or similar standards so what social class they are in would not really affect their grades because they are still expected to perform as well as other students. Also, the school gives time for their students to get work done at school with help and they provide materials to students to complete their work. All students have the same basic resources to help them succeed, which may help to close the financial gap among students, also possibly closing the educational gap.

Oftentimes birth order has an effect on GPA. We found that the older a student is the lower their GPA will be on average. Ha and Tam studied the effect of birth order on GPA. They found that birth order has no effect on a student's academic performance. However, their study used high-achieving students, so that may have affected their results. We believe that being the oldest affects one's GPA because they were the first child and were mostly raised by parents who had no experience and real idea of what they were doing in school. This may hold the student back academically, therefore, lowering their GPA, compared to younger students who benefit from sibling and parent experience.

Our project had several limitations due to not having an exact answer about the participants' family income. We were not able to directly ask participants their total family income and they may not have known what it was, which may have led students to place themselves in the wrong class. Also, many students placed themselves in the middle class so we did not have a balanced amount of participants in each social class. This may have affected our comparison of income and GPA. Another limitation is that authoritative and authoritarian parenting styles were often rated similarly in students’ surveys because they may not have seen a real distinction between these two parenting styles. We would recommend future researchers to go to a different school or use data from the past. Having a wide range of participants gives them ones with different backgrounds and gives more participants to include in their study.

In conclusion, we researched parenting style, family makeup, and financial resources and their effect on GPA. We found that the way parents parent their children and family makeup affects their students' GPAs. When raising children, parents should consider their style of parenting and what resources they have to help their children to succeed academically. Having a successful academic career can start in the home and lead to better educational outcomes.

### **Acknowledgments**

Thank you Mrs. Strothers for volunteering your group counseling time for me to do my project.

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