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# A Comparative Analysis: Does Birth Order Impact the Academic Success of High School Students?

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## ABSTRACT

This study investigates the impact of birth order on the academic success of high school students using a mixed-methods approach. Quantitative data was collected through a survey of 200 high school students, with 50 participants from each birth order category (oldest, middle, youngest, and only child). The survey gathered information on participants' GPAs, PSAT scores, and participation in gifted programs. Qualitative data was obtained through interviews with a subset of participants to explore family dynamics and personal experiences related to birth order and academic achievement. The results indicate a significant correlation between birth order and academic success. Quantitative analysis revealed that oldest and only children tend to have higher GPAs and PSAT scores compared to middle and youngest children. Additionally, oldest children showed the highest participation rate in gifted programs. Qualitative findings suggest that parental expectations, sibling relationships, and personal motivation vary across birth order positions, influencing academic performance. The study concludes that birth order impacts high school students' academic success, with oldest and only children generally achieving higher academic outcomes. These findings have implications for educators, parents, and counselors in developing personalized support strategies that consider birth order dynamics. The study also identifies areas for future research, including long-term impacts of birth order and its interaction with cultural and socioeconomic factors.

## Introduction

Within the familiar structure, each child holds a birth order position. Birth order, which refers to the sequence in which biological siblings are born into a family, includes the oldest, middle, youngest, and only child. In the field of psychology, birth order plays a critical role in the development of children's personalities. It profoundly influences children's behavioral patterns, academics, experiences, and psychological characteristics (Passey, 2012). Birth order falls under developmental psychology as it studies how birth order affects humans' growth, change, and adaptation throughout their lives (Salmon, n.d.). Within developmental psychology, birth order highlights its influence on human learning, growth, and adaptation. Understanding what contributes to the successful development of humans will not only be pivotal to individuals, but also create implications for society as a whole. By understanding the social abilities of each birth order, families can guide their offspring in forming meaningful connections and guide sibling relationships in the right direction, which are essential skills needed later on in life. Birth order awareness and implementation within a child's life could aid in steering parents, educators, and mentors in the right direction by tailoring their approaches to leverage each individual's strengths and address weaknesses more efficiently. The study of birth order originated with Alfred Adler, a prominent Austrian psychologist who established the "Birth Theory." This theory proved different positions in a family birth order may be correlated to both positive and negative life outcomes (BetterHelp, 2023). His groundbreaking work laid the foundation for future birth order studies. Family dynamics, parental expectations, self-esteem, and favoritism by parents are all positive and negative outcomes influenced by the birth order of each child. Furthermore, parents create distinct beliefs and expectations for each child based on their birth order, with the firstborns usually being the guinea pigs of the parents' aspirations and pressures for success. This is

known as parental pressure – the emotional stress parents impose upon their children. Parents aspire for their children to be happy and successful; however, their definitions of happiness and success may not align with their children's (Moore, 2022). The academic success of high schoolers could be potentially impacted by the parental birth pressures at home. It is vital to fully understand these broad dynamics since they have the power to influence children's attitudes, study habits, and motivation. In order for students to obtain full support and ensure that parental expectations due to birth order do not impede a student's academic ability, we must be aware of these factors. Consequently, the first study addressing the link between birth order and intelligence was done by Francis Galton, who realized that "there are more firstborn sons in prominent positions than what he attributed to chance" (Kristensen et al., 2007). Since Galton's initial findings, many researchers have questioned whether first-borns are more intelligent due to birth order and having more stimulus to develop skills. Birth order research is very convoluted, as it affects everyone in a different manner, and the lack of symmetry across different studies contributes to this (Long, 2019). This concept has been extensively researched but has not raised any concerns about its impact on students' education. The reasoning behind students' academic achievements has long been studied but is still in the process; birth order has rarely become a consideration. Understanding the possible intricate relationship between birth order and academics could be essential to guiding educators to alter their methods and strategies for each birth order to increase success. Researchers have found that the eldest children in families achieve greater academic success compared to the middle and youngest children (McNally et al., 2015). This study aims to investigate if many of the other birth order theories and correlations apply to high school students' academics. While many studies have studied the broader impacts of the birth order, there is still a need for a more specific investigation of its influence on high school students in modern times. Additionally, a critical gap is present at the high school level. This research intends to close the existing gap as it would really benefit their motivation and experiences in high school. The existing research also presents mixed and inconclusive findings; some point to the firstborns having academic advantages, while others prove that birth order has no significant effect, creating a lack of understanding of birth orders' impact on education. Classroom dynamics and parental influence are constantly evolving; gathering contemporary research on this effect will create more accurate conclusions than recent findings. With all this in consideration, the research purpose at heart is to find out if there is an existing correlation between the Adlerian birth order theory and the academic achievement of high school students. The primary objectives include reformatting education plans for students considering their birth order, guiding school counselors, and developing individual academic strategies to achieve success. I hypothesize that birth order does have an effect on the academic performance of high school students. First and only-born children will demonstrate motivation towards academic success and a higher GPA due to parental expectations. Middle children, often neglected, are expected to be adaptable within education, resulting in average academic success. Youngest children, often babied and experiencing loosened expectations, will have the least academic success.

## Literature Review

In order to understand why this study aims to determine if birth order impacts the academic success of high school students, it is crucial to look at the existing research on the subject. Several studies have indicated that birth order specifically affects the first child as they are more verbally articulate, less impulsive, more active, a better performer in school, more likely to go to college, and have a greater need to achieve (Lambert, 2005). However, not all researchers agree, and there is data to support both sides of the argument. Alissa Jo Combs-Draughn, a researcher at Walden University with a Ph.D. in educational psychology, conducted a quantitative study aimed to determine if psychological birth order directly impacts student achievement and motivation. The results of this research study, in which 183 participants filled out an online survey to assess psychological birth order, assess motivation, and obtain demographic information, including academic achievement, proved the hypothesis that birth order directly impacts student achievement and motivation. According to Combs-Draughn, the results show potentially helpful insight into the differentiation of instruction by introducing a new variable for educators to consider. (Combs-Draughn, 2016) Typically, numerical birth order is the point of research, but as observed in Combs-Draughn's study, birth order doesn't always match

psychological birth order and the way their behavior is based on their parents. This showcases a crucial gap in the understanding of how home family dynamics based on birth order affect academic achievement. The investigation of physiological birth order added important information to the existing body of research. The findings of Combs-Draughn provide a concrete base and background for my research. By recognizing the importance of psychological birth order, researchers gain an understanding of the relationship between family dynamics and academic performance. This is what my research tends to explore by investigating the impact of birth order, including parental pressures and family dynamics, on high school students' academics. Furthermore, Laura J. Botze et al., a group of researchers at the University of Goettingen, Germany, conducted a study to analyze the effects of birth order on intelligence, educational attainment, Big Five (a personality quiz), and risk aversion in an Indonesian sample. The study examined linear and non-linear birth order effects and potential interactions between birth order and siblingship size by having the participants fill out RAND's Indonesian Family Life Survey (IFLS), an ongoing longitudinal study with 50148 individuals living in Indonesia. (Botzet et al., 2021) The study showed that birth order had a relatively small impact on intelligence, personality traits, and risk aversion within Indonesia. This study emphasized the cultural variation in the influence of birth order, illustrating the importance of considering cultural nuances in understanding family dynamics and their outcomes. The results of this study present a contrast when compared to most conducted in Western society. The limited culture assessment shows the need for a more varied and cross-cultural perspective as this data diverges significantly, leading to inconclusive findings in the field. As I conduct my research, I will incorporate participants with diverse customs, include questions about participants' identified race, as well as survey a culturally diverse audience in an attempt to address the persisting gap characterized by inconclusive and divergent findings from studies focused on one culture. A significant investigation was conducted by Amy G. Row, a researcher at Missouri Western State University Department of Psychology, in which 50 Missouri Western State College students participated in the research by completing a short intelligence test while aiming to investigate the effect of one's birth order on one's intelligence. The results demonstrated that only and first-born children have higher intelligence levels than middle and youngest-born children, as their test results were significantly higher. Their findings demonstrate the confluence theory of many other researchers' findings. According to the author, "The Confluence Theory states that the intelligence level in the family decreases as the number of children increases. The second part of the Confluence Theory claims that the reason for this decrease is due to the fact that the elder children teach the younger siblings. In other words, the older children gain intellectually from teaching their younger siblings, and because last born children have no one to teach, their development, in turn, suffers" (Row, 2001). The data also proved Alfred Adler's family constellation theory, serving as a basis and background for evidence in this field. A significant gap in this existing research lies in the findings of only college students. These studies are mostly conducted around college-level students and adults when humans are already developed and accustomed to school, while they often neglect high school students who still live in their childhood home and experience the critical cognitive and education development period of their role in birth order every day. Moreover, the current body is questionable in terms of its temporal relevance. The majority of existing studies, including the one conducted at Missouri Western State College, have been done several decades ago. Parenting styles, family structures, and educational approaches have evolved drastically, questioning the contemporary relevance of the existing conclusions. There is an urgent need for further research that will close the gap and form new and applicable research conclusions. After analyzing a plethora of journal articles and identifying multiple research gaps, additional research is required to achieve the goals of this study and assess the impact of birth order on the academic success of high school students. This research aims to identify patterns and trends associated with different birth orders and apply them to the modern world. By relying on these conclusions, educators can develop tailored educational strategies and enhance teaching methods personalized for each birth order to ensure everyone receives the education they need. Moreover, informing school guidance counselors will encourage personalized guidance and class selection that aligns with students' birth order, creating learning environments that recognize each birth order's unique strengths and weaknesses. Through further research, this study will provide applications for birth order within academics in high school, aiming to ensure that parents and educators have access to up-to-date information to promote high school students' academic success and growth, as academic success rates have been decreasing lately.

## Research Design and Methodology

### Part 1: Quantitative Approach

The first part of this study seeks to determine how birth order correlates with high school students' grades and test scores. The goal is to increase awareness regarding birth order and further implement it in school programs and education. In order to test this, a two-part mixed methodology was conducted. This approach allowed for both a quantitative and qualitative analysis of the impact of birth order. This is important because the mixed-methodology will allow for capturing details and nuances that would not have been revealed had only one component of the method (only the survey) been utilized to gather data to form an accurate conclusion (Leedy & Ormrod, 2010). The two methods used to gather data included a quantitative survey and qualitative interviews. As presented in a literature review, most studies conducted under this umbrella followed a similar approach; however, the studies were conducted many years ago and did not include this "mixed-method" approach.

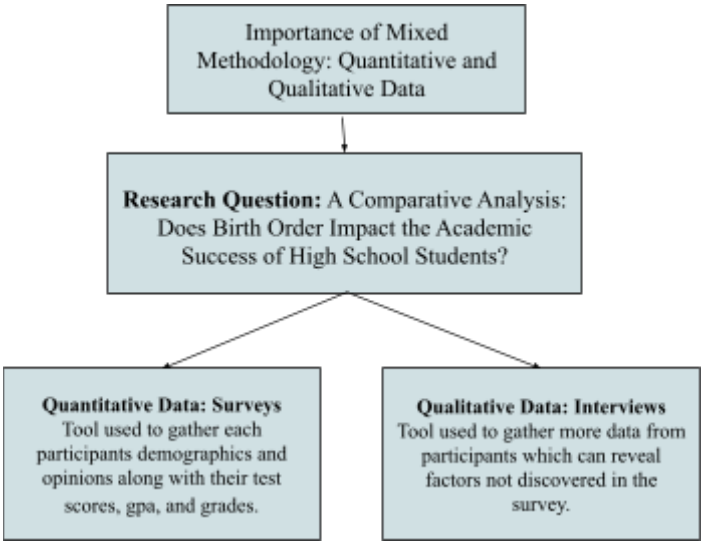


**Figure 1.** Importance of Mixed Methodology

The survey consisted of twenty questions, including multiple-choice and open-ended questions. It was sent to participants, who included high school students from various Florida schools. The students who participated in the survey were chosen to represent high school students from ninth to twelfth grade, with the aim of examining the experiences and implications of birth order on those who are currently enrolled in high school.

*Table 1* depicts the survey utilized in the research process, with the questions located on the left-hand side and the type of response required located on the right.

**Table 1.** Survey Examining the Impact of Familial Birth Order on High School Students Academic Success

| Questions | Type of Response |
|---|---|
| What is your gender? | Multiple Choice |
| What grade are you currently enrolled in? | Multiple Choice |
| What is your age? | Multiple Choice |
| What Racial/Ethnic group do you identify with? | Multiple Choice |

| | |
|---|---|
| What is your familiar birth order? | Multiple Choice |
| Are you the first grandchild? | Multiple Choice |
| How many siblings do you have? | Multiple Choice |
| What is your unweighted grade point average? | Open-Ended |
| What is your weighted grade point average? | Open-Ended |
| How many Advanced Placement Exams have you passed? | Open-Ended |
| Have you passed the Algebra 1 and Geometry End of Course Exam? | Open-Ended |
| What is your most recent PSAT score? | Open-Ended |
| Do you participate in the gifted program? | Multiple Choice |
| Describe any awards or recognition received from your school. | Open-Ended |
| Describe your motivation, attitude, and purpose in school. | Open-Ended |
| How would you describe your relationship with your siblings? | Multiple Choice |
| How would you describe your relationship with your parent/guardian? | Multiple Choice |
| Do your parents' expectations and pressures influence your school habits? | Multiple Choice |
| What is your parents' highest level of education? | Multiple Choice |
| If you are willing to participate in an interview to gain further information, please leave your phone number below. | Open-Ended |

### *Procedure*

The survey was sent out to multiple high schools and teachers who gave their students access to the survey. 231 participants completed the questionnaire, but only 200 of the participants' responses were analyzed in this research, with fifty being from each birth order (oldest, middle, youngest, and only child). To ensure confidentiality and unbiased results, the participants were informed that their names nor email addresses used to complete the form would be disclosed.

### *Hypothesis*

For the quantitative section of the research study, the questionnaire was used to determine the impact of birth order on the numerical success of high school students. The questionare helped gather data on birth order and academic performance, providing a foundation for statistical analysis to determine the strength and significance of any observed correlations.

Null Hypothesis: If the academic success of high school students is analyzed, there will be no significant correlation between birth order and academic achievement.

Alternative Hypothesis: If the academic success of high school students is analyzed, there will be a significant correlation between birth order and academic achievement.

*Quantitative Data*

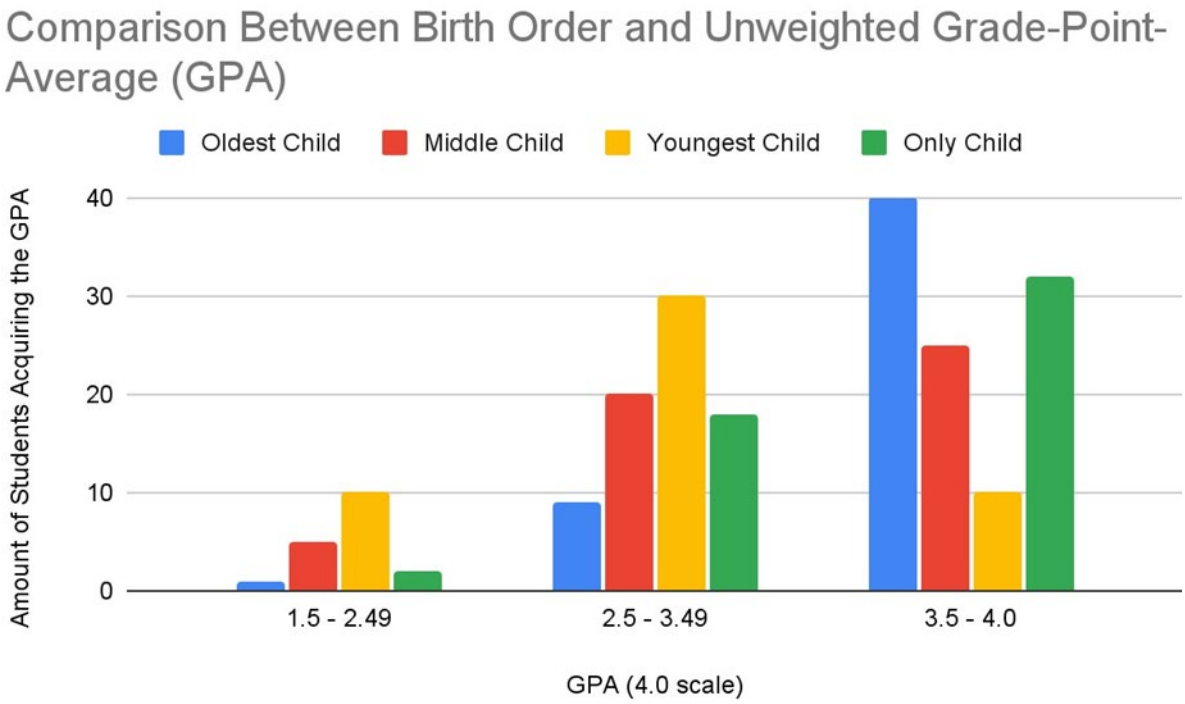


**Figure 2.** Comparison Between Birth Order and Unweighted Grade-Point-Average

Figure 2 compares birth order and unweighted grade-point averages (GPA) on a 4.0 scale. Most students in the oldest child category had outstanding GPAs, especially 40 participants who fell within the 3.5 and 4.0 range. Strong academic success was also demonstrated by middle children, who mostly obtained GPAs in the 2.5 - 3.49 and 3.5 - 4.0 ranges. The youngest and only children showed a more mixed distribution, with a significant concentration between 2.5 and 3.49. The ANOVA test, an analysis of variance, was used to determine if a significant difference existed between the GPAs and the different birth orders (Bevans, 2023). Birth order was found to have a significant effect on GPAs, which was significant at $p \leq 2.353$. The ANOVA test was used to determine these results, which found that the oldest children had the highest mean ranking GPA at 3.6, only children were the second highest with a mean of 3.55, while the middle children had a mean of 3.3 and the youngest came in last with a mean of 3.03.

**Table 2.** Anova Single Factor Test: Mean Unweighted GPAs

| SUMMARY | | | |
|---|---|---|---|
| Groups | Count | Sum | Average |
| Oldest Child | 50 | 180.096 | 3.60192 |
| Middle Child | 50 | 166.336 | 3.32672 |
| Youngest Child | 50 | 151.487 | 3.02974 |
| Only Child | 50 | 177.345 | 3.5469 |

In addition to comparing the correlation between PSAT scores and birth order, this research also focuses on comparing the correlations between PSAT scores and birth order.

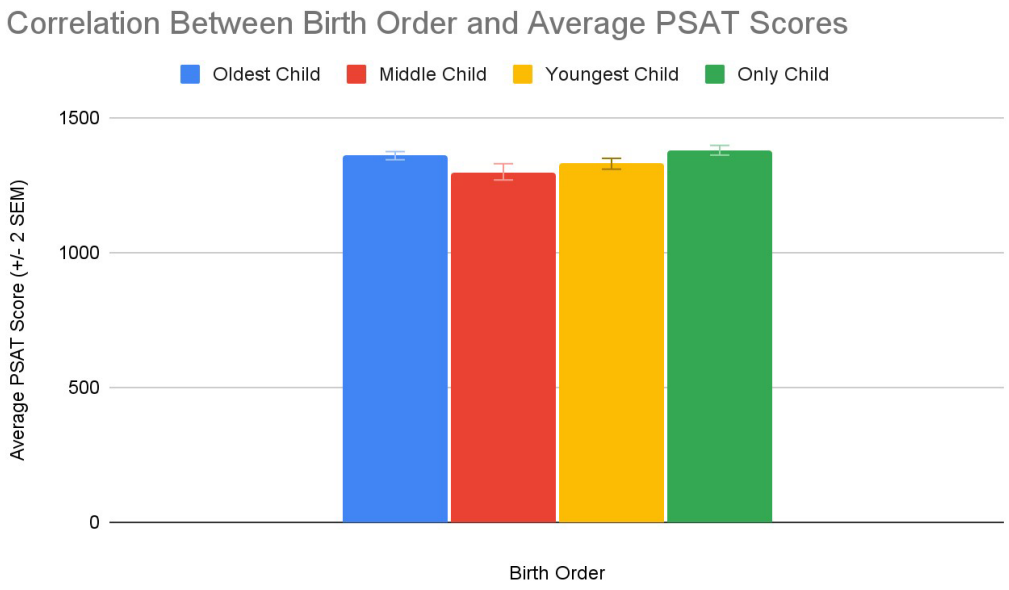


**Figure 3.** Comparison between Birth Order and PSAT scores

Figure 3 shows that birth order also impacted the PSAT scores of high school students. The graph found that the standard error of the mean bars did not overlap, proving there is significance between the scores acquired by each birth order position. The only children obtained an average of 1380, with the oldest children not far behind with an average of 1360. There was a significant decrease in scores when compared to the youngest children, with an average of 1330, and the middle children, with an average of 1300. Additionally, an ANOVA test was conducted on the PSAT scores to determine variance between the birth order positions. Birth order was found to have a significant effect on PSAT scores, which was significant at $p \leq 2.353$. The ANOVA test was used to determine these results, and it was found that only children had the highest mean ranking PSAT scores as well. Beyond just looking at PSAT scores, this study went deeper. Participants were also analyzed for their participation in the gifted program, with the goal of showing how the students get involved in different school programs and educational paths. The survey responses were analyzed to conduct an analysis of their participation in the program.

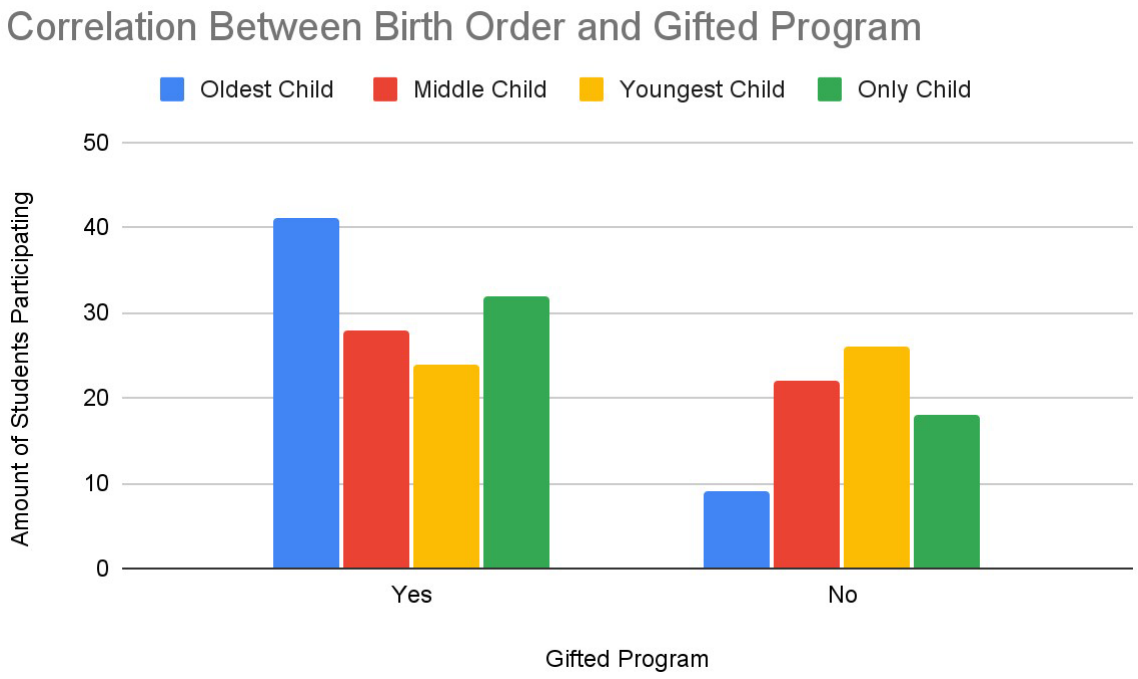


**Figure 4.** Correlation Between Birth Order and Students Participation in the Gifted Program

After a deep analysis of the results, it can be stated that 82% of the oldest children participate in the gifted program offered at their school, which is the most participation recorded out of all birth order positions. However, only 64% of only children, 56% percent of middle children, and 48% of youngest children participate in the gifted program. As birth order decreases, so does participation in the gifted program, showing a correlation between birth order and the gifted program. Oldest children are seen to acquire higher academic success as they participate in more rigorous programs than the rest of the birth order positions.

## Conclusion 1

After analyzing the results from the questionnaire, which provided insight into the participants' intelligence, various conclusions have been formed on the impact of birth order on the academic success of high school students. The alternate hypothesis has been accepted as the results show that there is a significant difference between SAT scores, unweighted GPA, participation in the gifted program, and birth order. The ANOVA test found birth order to have a significant effect on PSAT scores and unweighted GPA, which was significant at $p \leq 2.353$.

The majority of students were found to obtain a GPA in the range of 2.5 - 3.49, with the oldest children having the highest average GPA of 3.6. The only children were not far behind, with an average GPA of 3.55. This key finding suggests that a strong correlation exists between oldest and only children and higher GPAs. Furthermore, there proved to be a significant difference between each participant's PSAT scores and the standard error of the mean bars, which did not overlap, with only children obtaining the highest average score of 1380. It can be concluded that a strong negative correlation exists between birth order and PSAT scores because as the birth order decreases, so does the performance of their PSAT scores. Lastly, it can be presumed that the majority of participation in the gifted program can be attributed to the oldest children, as 86% of participants in the study stated they are enrolled in the gifted program.

The initial part of this study provides a quantitative understanding of the impact of birth order on the academic success of high school students. The results of this section conclude that birth order does have a correlation and impacts

the success of high school students, which can inform future designers of education curricula and parents to aid high schoolers' success in high school ultimately.

## Part 2: Qualitative Approach

For the second part of the research, a qualitative approach was used to support the quantitative data gathered in the survey to determine the impact of birth order on the academic success of high school students. The qualitative part of this study was done by interviewing participants. The interviews allowed me to gain a deeper understanding of their experiences in high school, which is something that can not be obtained simply through test scores. The purpose of including interviews in this study was to gather information that was not just based on test scores. This mixed-method approach allows for a variety of data types to be included, which will allow me to discover the reasoning for the test scores that were shown in the survey. A purposive sampling method was used to select participants who volunteered for the interviews, which allowed an equal representation for each birth order (Tongco, 2007). The interviews were semi-structured while allowing flexibility for conversation. The interview guide was composed of a few open-ended questions that allowed participants to expand on the open-ended questions they responded to in the survey. The questions encouraged participants to share their thoughts on their academic experiences, family dynamics, and the role of birth order in their family and in shaping their education.

**Table 3**. Sample Interview Questions

| Questions |
|---|
| Can you share your thoughts on your academic success in high school? |
| How would you describe your relationship with your siblings and parents? |
| Do you believe your parents set different academic expectations for you than your siblings based on your birth order? |
| Have you experienced any pressure or expectations from your parents regarding academic performance? |
| In what ways do you think birth order has shaped your education process? |

### Hypothesis 2

The interview method was used for the qualitative section of the research study, which sought to determine the impact of birth and family dynamics of birth order on the academic success of high school students. Therefore, after various scholarly works were analyzed, the hypothesis proposed was that birth order influences not only the expectations placed on high school students but also shapes their motivation, study habits, and familial relationships, ultimately impacting their academic success.

### Data 2

The interviews were analyzed using a thematic analysis approach to identify prevalent themes and support the quantitative research conclusions (Peel, 2020). The transcripts were reviewed to identify themes and patterns related to birth order's impact on academic success. This process involved analyzing the data, organizing it into themes, and

interpreting the findings to provide a qualitative perspective on the research question. After careful analysis, three major themes emerged: parental expectations, sibling relationships, and motivation. Participants first shed light on the topic of parental expectations. Over 50% of the participants interviewed stated that they have observed how their parent's expectations change from offspring to offspring. Most first-born participants stated that they always felt an unspoken expectation to set the bar high and carry on the family legacy. Older siblings felt like their mistakes were always a bigger deal, as they were under immense pressure to succeed. Among all participants, 80% of them felt their birth order affected their parent's relationship towards them and how much pressure was exerted on them to succeed academically. Additionally, among only children and oldest children, 75% felt high academic pressure from their parents, and 40% of middle and youngest children felt a similar issue. Furthermore, the roles assumed by different birth order positions evidently shaped sibling relationships among the participants. The oldest children reported they always felt like it was their responsibility to "tutor" the younger siblings. As they tutored, they reinforced the material, causing a better academic output on their part. Also, a big topic that was brought up included comparison. The youngest siblings felt they were always being compared, which they felt they had to live up to. 55% of oldest siblings reported taking on a tutoring role, while 33% of middle and youngest siblings felt they faced challenges due to comparison. Lastly, birth order was shown to be closely linked to participants' motivation levels toward school during the interviews. 85% of participants agreed with the statement that they want to succeed not only for themselves but to meet those family expectations. An additional 49% of participants interviewed expressed that their parents' expectations and pressures influenced their school habits, causing them to study more frequently to meet their parents' expectations.

### Conclusion 2

After analyzing the transcripts from the interviews, which provided insight into the participants' at-home dynamics, various conclusions have been formed on the impact of birth order on the academic success of high school students. The hypothesis was correct as it was proven that birth order influences not only the expectations placed on high school students but also shapes their motivation, study habits, and familial relationships, ultimately impacting their academic success. The qualitative analysis provides context to the quantitative findings, reinforcing the concept that birth order is an integral factor influencing high school students' academic success. The qualitative conclusions emphasize the need for educators, parents, and counselors to recognize the individuality of each birth order position and create support strategies accordingly.

## Discussion

### Overall Conclusion

After analyzing all of the gathered data, it can be concluded that birth order does impact the academic success of high school students. The quantitative segment of this study conducted in this study showed strong correlations between birth order, unweighted GPA, and PSAT scores.

Overall, the oldest and only children's scores were higher than the middle and youngest children. This conclusion highlights the impact of birth order on educational success in high school. The qualitative conclusions supported the analyzed scores, which helped to understand why and how birth order impacts students. Parental expectations emerged as a common cause, which played out differently for each birth order. The oldest and only children experienced high academic expectations and pressures from their parents, and the oldest and youngest children were compared to the oldest siblings. Sibling relationships were also concluded to be a cause of the impact of birth order on the academic success of high school students. Motivation emerged as the final key element influenced by birth order. Interviewed participants mentioned a sense of responsibility associated with their birth order position,

indicating that their motivation to succeed was often connected to meeting their family's expectations. This added a psychological aspect to the numbers I gathered, indicating how birth order, family dynamics, and academic success are all interconnected.

### New Understanding and Fulfillment of Gaps

After conducting my research and reviewing scholarly works from credible sources, this study concludes that birth order does impact the academic success of high school students. This research closes a notable gap in the literature by specifically focusing on high school students. While birth order studies have been conducted in various contexts, the high school aspect has been overlooked. These conclusions provide relevant insights and new information, which can replace outdated information on this topic, as education and family structures have evolved over time. Previous works have discovered weak correlations as birth order impact varies from family to family; however, we now understand that birth order correlates with the academic success of high school students, and that correlation has been refined. It has been concluded that based on the impacts of birth order, the oldest children are likely to achieve the highest academic success. Additionally, it can be concluded that birth order impacts standardized testing scores, PSAT, with the oldest and only children acquiring the highest scores. The conclusions also imply that birth order impacts eligibility for specialized education programs.

## Closing

Academic success is a significant problem in today's society. The younger generation's teenagers are accomplishing less and less in high school every day. This study establishes the fact that birth order impacts the academic success of high school students. As potential factors for this large decrease are being discovered, solutions can be created to help solve the problem. Teachers, students, and educators should take birth order into consideration when dealing with school-related issues to make sure they understand the root of the problem, in order to create personalized education plans to help fix the issue. Therefore, it can be concluded that birth order impacts the academic success of high school students, increasing the likelihood of tailored education plans based on birth order for students in the future.

## Limitations

As with all conclusions, there come limitations. The sample size used can be seen as a great limitation of the results. The sample size can be seen as too small to represent the entire population. The sample also consisted of all high schoolers in the Miami area. The majority of the students were of similar backgrounds and socioeconomic backgrounds. The results may have varied drastically if the sample size was expanded into other school areas, age groups, and cultural backgrounds. Another limitation of the study was the method used to determine the participants' intelligence. The PSAT scores, GPA, and participation in the gifted program were the only tests used to represent a participant's intelligence. Intelligence is determined by more than simply one test score or grade average. Lastly, the method used to collect participants' test scores was through self-reporting. This study did not account for the self-reporting bias that may have occurred, as participants could have been ashamed of their score received or simply just could not remember, skewing the results.

## Implications

The implications of this research extend far beyond academics, influencing educators, parents, and counselors. Recognizing the effects of birth order allows for the development of personalized support strategies that acknowledge the

unique needs of each birth order position. Educators can change education programs in order to create personalized education plans based on birth order, which will create a more inclusive and supportive learning environment. Parents and guardians will now be informed of their children's education styles, which will help them modify their expectations. School guidance counselors working with high school students can consider birth order when creating class schedules to ensure the students can manage the workload.

## Extensions and Further Studies

This study's limitations lead to various areas of future research. Researchers could compare the academic success of each birth order position within each family. Doing so will allow researchers to evaluate the role of birth for each sibling. Additionally, while this study analyzes the short-term impact of birth scores by analyzing high school success, further studies could analyze the long-term impacts. Evaluating how birth order influences career choices, interpersonal relationships, and overall life success in adulthood could provide valuable insight into this topic. Understanding whether the patterns observed in high school continue or change over time contributes to a more in-depth understanding of the lifelong impact of birth order. Lastly, studies could be done to examine the connection of the impact of birth order with other factors such as cultural background, socioeconomic status, and regional influences. Birth order dynamics may play out differently in diverse contexts, so future research should aim to evaluate this.

## Acknowledgments

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