

Syracuse University

SURFACE

Syracuse University Honors Program Capstone Projects Syracuse University Honors Program Capstone Projects

Spring 5-1-2012

Birth Order and the Academic and Social Success of College Students

Jessica Nissenbaum

Follow this and additional works at: https://surface.syr.edu/honors_capstone



Part of the [Applied Behavior Analysis Commons](#), [Personality and Social Contexts Commons](#), and the [Social Work Commons](#)

Recommended Citation

Nissenbaum, Jessica, "Birth Order and the Academic and Social Success of College Students" (2012). *Syracuse University Honors Program Capstone Projects*. 185.
https://surface.syr.edu/honors_capstone/185

This Honors Capstone Project is brought to you for free and open access by the Syracuse University Honors Program Capstone Projects at SURFACE. It has been accepted for inclusion in Syracuse University Honors Program Capstone Projects by an authorized administrator of SURFACE. For more information, please contact surface@syr.edu.

Birth Order and the Academic and Social Success of College Students

A Capstone Project Submitted in Partial Fulfillment of the
Requirements of the Renée Crown University Honors Program at
Syracuse University

Jessica Nissenbaum
Candidate for BSSW Degree
and Renée Crown University Honors
May 2012

Honors Capstone Project in Social Work

Capstone Project Advisor: _____
Advisor Title & Name

Capstone Project Reader: _____
Reader Title & Name

Honors Director: _____
Stephen Kuusisto, Director

Date: 04/24/12

Abstract

The purpose of the study of Birth Order and the Academic and Social Success of College Students was to examine the relationship between birth order and the academic and social experiences that students have during their college years. An ideal college experience involves students being actively engaged in what they are learning and having positive social interactions and support networks. Unfortunately, the college experiences of many students fall short of these expectations and they struggle to continue their pursuit of higher education. Depression has become a serious concern on college campuses. Understanding the birth orders that may create challenges in achieving academic or social success could reduce the number of college students having negative college experiences.

This study utilized an anonymous and voluntary survey where Syracuse University students were asked to evaluate their own personalities and college experiences as well as answer demographic questions such as age, gender, order of birth in family, and the genders and order of birth for their siblings. This study broke birth order down into two components: sibling role and gender role. Sibling role was defined as the role a person assumes as an older sibling, a younger sibling, neither, or both. Gender role was defined as the role a person assumes as a brother or sister in relation to other siblings, if any. Both sibling role and gender role were explored to determine if they influenced academic and social success.

The results of the survey were statistically analyzed using SPSS to determine how birth order may affect academic and social success in college. There were 505 responses to the survey from undergraduate students at Syracuse University. It was found that only-borns and middle-borns who have the same gender as all of their siblings held the lowest scores for academic and social success. It was also found that these two populations were least likely to view their birth orders favorably. These findings were then used to discuss potential challenges facing these college students and to explore how social workers can use this study about birth order to address these problems. Knowledge and understanding of birth order and its effects may help social workers address unmet needs or disadvantages that children may be experiencing as a result of their sibling and gender roles. Having a better understanding of the relationship between birth order and academic and social success can help social workers address unmet needs of children in order to give them the tools to enjoy positive college experiences.

Table of Contents

I.	Acknowledgements.....	iii
II.	Introduction.....	1
	Background of the Problem.....	1
	Statement of the Problem.....	2
	Significance of the Problem to Social Workers.....	3
III.	Literature Review.....	4
IV.	Nature of the Study.....	19
	Research Questions.....	19
	Hypotheses.....	20
	Definitions of Terms.....	21
	Limitations.....	22
V.	Methodology.....	24
	Research Design.....	24
	Instrument.....	29
	Population.....	31
	Data Collection.....	31
	Informed Consent.....	32
	Confidentiality.....	33
	Informed Consent.....	34
VI.	Results.....	35
VII.	Discussion.....	51
VIII.	Conclusion.....	59
IX.	References.....	63
X.	Appendix: Anonymous Survey.....	65
XI.	Summary of Capstone Project.....	68

Acknowledgements

This project could not have been completed without the encouragement and guidance of my Academic Advisor and Honors Reader, Professor Deb Monahan. Deb has been a source of inspiration and support for me for the past four years, and I cannot thank her enough. I would also like to thank Professor Linda Stone Fish for being my Capstone Advisor and for always taking the time to provide direction and feedback.

This project required me to rely on a multitude of academic skills and I would like to thank the Social Work Department and the Women's and Gender Studies Department for helping me to develop these skills and for preparing my brain to take on this year-long project. Lastly I would like to thank the Renée Crown Honors Program for being an invaluable resource throughout this process.

Introduction

The purpose of this study was to examine the relationship between birth order and academic and social success in college. A statistical design was used to establish which sibling and gender roles fared the best academically and socially during their college years. This study utilized an anonymous survey where Syracuse University students were asked to evaluate their own personalities and college experiences as well as answer demographic questions such as age, gender, order of birth in family, and the genders and orders of birth for their siblings. Conclusions were drawn from these survey results based on descriptive statistics, frequencies, and correlations to determine how birth order affects academic and social success in college.

The focus of this paper is to explore the problem statement, significance of the study to social workers, nature of the study, research questions and hypotheses, limitations of the study, theories that previous researchers have developed, methodology of the study, results, theories that may explain the results, and a conclusion regarding the research questions. This paper also addresses how the information gathered through this research project can be used to address the problem.

Background of the Problem

The primary purpose of this study was to examine the relationship between birth order and academic and social success in college. Previous researchers have found that birth order has an effect on intelligence levels (e.g. Zajonc, Markus & Markus, 1979), achievement motivation and potential (e.g.

Srivastava, 2011), self-esteem (e.g. Kidwell, 1982), relationship beliefs (e.g. Kalkan, 2008), identity formation (e.g. Wong, Branje, VanderValk, Hawk, & Meeus, 2010), social skills (Blake, 1991), and personality traits (e.g. Nyman, 1995). In general it has been found that first-born children have an advantage in professional and academic pursuits while later-borns have an advantage in creating and maintaining personal relationships. It has also been found that a person's gender role in the family can influence personal experiences because having a common or unique gender within the sibling relationship may have significant effects (Kidwell, 1982). The explanations behind these differences vary and much is left to be understood about the true effects of birth order.

Previous studies have focused on children (e.g. Blake, 1991), adolescents, (e.g. Szobiova, 2008) emerging adults (e.g. Wong, et al., 2010), and adults (e.g. Kalkan, 2008). Researchers hope that understanding the advantages and disadvantages of being a first-born, middle-born, last-born, and only-born, as well as having a gender that is similar or different from other siblings will allow families and professionals to address potential hurdles people of all ages may face as a result of their birth order experiences.

Statement of the Problem

Students who attend college expect to encounter enriching experiences that will put them on the path to future happiness and success. An ideal college experience involves students being actively engaged in what they are learning and having positive social interactions and support networks. Unfortunately, the college experiences of many students fall short of these expectations and they

struggle to continue their pursuit of higher education. Over ten years ago it was found that “10-15% of college students struggle with depressive illness...and 53% of students experienced depression at some point during their college careers” (Lindsey, Fabianno, & Stark, 2009, p. 1000). Students with mental illness and suicidal ideation have become a serious concern on college campuses (Lindsey et al., 2009). Along with students who are clinically depressed, there are also students who may struggle to make the most of their college experiences. Achieving both academic and social success in college is sure to transform a person’s college experience into a positive one, but not everyone can achieve these two forms of success in college. Research supports that the advantages and disadvantages of sibling roles and gender roles influence who may be able to easily attain academic or social success and who may struggle to achieve these goals.

Significance of the Problem to Social Workers

Social workers often work with families in an attempt to facilitate an interactive unit of mutual support to meet the needs of every family member. It is essential for any social worker working with a family to understand the family and sibling dynamics. Knowledge and understanding of birth order and its effects may help social workers address unmet needs or disadvantages that children may be experiencing as a result of their sibling and gender roles. Social workers could educate parents on unintentional differences in how their children are parented and help them to understand the importance of exposing their children to diverse experiences that children with multiple siblings of different genders experience

every day. Knowing and addressing the disadvantages that some children may be at could provide the children with the tools necessary to live successful professional and personal lives, regardless of if the children end up attending college. For those young adults who do end up pursuing higher education, knowledge of their sibling and gender role advantages and/or disadvantages could maximize academic and social success. This has the potential to reduce the risk for a negative college experience.

Literature Review

The idea that birth order can have life-long effects on adults is one that has frequently been considered. There are even widely accepted stereotypes of first-borns, middle-borns, last-borns, and only children (Nyman, 2001). First-borns are seen as being intelligent, ambitious responsible, and obedient, as well as self-centered, spoiled and the least creative (Herrera, Zajonc, Wieczorkowska, Cichomski, 2003). Middle-borns are thought to be independent, thoughtful, and open-minded, but also neglected, envious, and rebellious. Last-borns are considered to be sociable, creative, and talkative, but also emotional, immature, and spoiled (Eckstein, Sperber, & Miller, 2009). Only children are expected to be ambitious and independent, but also anti-social and disagreeable (Nyman, 2001; Herrera et al., 2003). Numerous studies have been conducted in the past decade to assess beliefs about birth order, but these beliefs have existed far longer than can be calculated. These assumptions about birth order effects have fueled many professional research studies to establish what the measurable effects of birth order really are. The purpose of this literature review is to explore previous

research regarding the effects of birth order. A wide range of research questions have been asked, but many conclusions have shown similar findings regarding intellectual development and sociability of adults as a result of their birth orders and childhood experiences with or without siblings. There have also been disagreements among scholars on the true effects of birth order. The studies explored in this review establish the information already understood about birth order and the information that still needs to be explored.

It appears that Alfred Adler was the first to publish a theoretical discussion of birth order effects in 1928 (Srivastava, 2011). Adler discussed how “even though children have the same parents and grow up in nearly the same family setting, they do not have identical social environments” (Srivastava, 2011, p. 170). Beliefs about birth order have evolved greatly since 1928, as made clear by Srivastava’s (2011) account of Adler’s profile of birth orders based on shared characteristics.

The oldest child tends to be conservative, power oriented and predisposed towards leadership. The only child according to Adler tends to be dependent and self-centered. Adler is also quoted as saying ‘the only child has difficulties with every independent activity and sooner or later they become useless in life.’ Furthermore, the middle child is usually achievement oriented, but may set unrealistic goals that will end in failure; finally the youngest tends to be highly motivated to outdo older

siblings in various accomplishments (Srivastava, 2011, p. 170).

Some of Adler's beliefs are still supported, but many have been refuted since 1928. In 1992, Watkins wrote a critical review on Adler's theories of birth order and determined his studies were inconclusive. They did not take into consideration factors such as psychological position, gender, age spacing, socioeconomic status, and race (Watkins, 1992). These limitations of Adler's study have been repeated by many researchers resulting in a need for additional research into the effects of birth order.

In 1977 Lindert wrote a paper entitled "Sibling Position and Achievement." Lindert (1977) examined the ways in which a person's sibling position as a child affects levels of schooling and occupational status later in life. By examining intra-familial dynamics he concluded that adults who have higher achievements received more attention and spent more time with their parents as children. Lindert claimed that the amount of time and energy that parents provide for their children is directly related to birth order. His claim that "sharing family time and money with siblings is a drag on achievement" led to his analysis of the advantages and disadvantages for each sibling position (Lindert, 1977, p. 203). He established that first-borns spent the most time with parents, especially when accounting for the one-on-one time the child received before any other child was born (Lindert, 1977). He found that first-born adults attained the highest achievements and held the highest IQs. Any child born between the first and last generally received less attention than the other children and also received less

encouragement. Lindert (1977) found that middle-born adults are less intelligent than first-born adults. His analysis of last-born children showed that they received more attention and encouragement than middle children. He also found that last-born adults generally stayed in school longer than any other sibling position. His research also found that only-born adults did not have any advantage in achievement levels despite having no other siblings to compete with for time and support from parents (Lindert, 1977). Lindert's study illustrated how birth order could affect achievements in adult life but his definition of achievement included occupational status and prestige. This does not account for people who are capable of high achievements but have not had the opportunity or desire to pursue a prestigious career path. Had he examined a pool of college students, he would have found that everyone was trying to achieve success regardless of career interests, and this would have been a better population to illustrate how birth order influences achievement.

Within the next few years several studies came that found higher levels of intelligence among first-born children. Falbo (1978) examined the trends surrounding sibling tutoring and the idea of older siblings assisting their younger siblings with school work. Falbo proposed that having younger siblings to tutor is beneficial to intellectual development (Falbo, 1978). Falbo's theory could account for the discrepancy in Lindert's (1977) study about only children not attaining higher levels of achievement even though they receive more attention from parents. A second study agreed with Falbo's conclusion that the teaching function acquired by older siblings when younger siblings are born can increase

the intelligence of earlier-born children (Zajonc et al., 1979). Without younger siblings to tutor, only children do not have the same advantage that anyone with younger siblings has. This also explained why Falbo (1978) found that last-born children were the least intelligent. These birth order studies show that the sibling role a first-born child plays as a tutor is significant in affecting the child's later intelligence. This could lead readers to wonder what other roles older and younger siblings take on that influence their adult traits.

In 1982 Kidwell examined how birth order had affected self-esteem. She defined a person with high self-esteem as someone who “realistically respects himself, considers himself worthy, and expects to grow and improve” (Kidwell, 1982, p. 228). On the other end of the spectrum a person with low self-esteem experiences “self-rejections, self-dissatisfaction and disapproval, and a desire to change oneself (Kidwell, 1982, p. 228). Kidwell found that birth order influences self-esteem because it affects how unique and valued a child feels. Kidwell's research showed patterns that first-born children and only-born children have high levels of self-esteem. She attributed this to the high level of uniqueness the children feel. This uniqueness could be an internal perception or the effect of specialized treatment from parents (Kidwell, 1982). Kidwell found that middle children believe their parents are less supportive and they experience a “lack of uniqueness” (Kidwell, 1982, p. 234). She found that middle-borns generally have lower self-esteem than first-borns and only-borns. She also found that self-esteem can be enhanced in a middle child when the middle child has a unique gender status (Kidwell, 1982). Unlike previous researchers, Kidwell addressed how the

combination of gender and birth order creates the childhood experience that can later affect adult experiences. However, Kidwell's focus was on middle children and therefore, only examined how the gender of middle-borns impacted self-esteem. There is still a need for an exploration of how the gender role of all sibling positions affects adult traits.

The sociability of an adult is widely recognized as a trait that starts as a child (Blake, 1991). In a study titled "Number of Siblings and Personality" Blake explores how the size of a family affects how social skills are learned (Blake, 1991). Blake defines sociability as the "desire to draw near, cooperate, and be with a friend. The actions associated with this motive are meeting people, making acquaintances, showing good will, doing things to please others, and avoiding wounding others" (Blake, 1991, p. 272). Blake's paper focuses on the ways in which large families provide practice in learning these social skills. Growing up with more siblings forces children to interact with similarly-aged peers and requires the child to adapt to sharing both tangible and intangible belongings such as toys or affection from parents. Having more siblings also requires children to take the needs and news of siblings into account (Blake, 1991). Blake discusses the ways in which only children are less social than children with siblings. As children, only children seem to associate more with adults and less with peers (Blake, 1991). Blake concludes that the social skills built from large families create more sociable adults. She does not discuss if individual intra-familial sociability is affected by birth order or if the presence of more than one gender in a family can affect sociability.

Contrary to the beneficial social effects of belonging to a large family, several researchers have examined the detrimental intellectual effects of belonging to a family with many children. Zajonc et al. (1979) explore the Confluence Model in their study on intelligence and birth order. According to the Confluence Model, when a second child is born the average of the intellectual level within the family is decreased (Zajonc et al., 1979). The average intellectual level of the family is calculated by dividing the sum of every family member's IQ by the number of family members. As newborns and young children are not able to contribute to the intellectual total of the family, additional births continue to decrease the average intellectual level of the family. The Confluence Model is also based on the idea that a reduced average intellectual level will limit the intelligence level that can be attained by the children (Zajonc et al., 1979). This model suggests that intelligence decreases with birth order and family size. Other studies have shown that high levels of intelligence can still be attained by last-born children, such as Lindert's (1977) finding that last-borns generally complete the most schooling, however the idea that larger families produce less intelligent children has been widely established (Falbo, 1978). This correlation leads many to adopt the belief that being in a large family reduces one's intelligence, but in fact causation cannot be established by the high correlation between intelligence levels and family size. In a study entitled "Resolving the Debate over Birth Order, Family Size, and Intelligence" it is proposed that adults with lower IQs are more likely to have large families (Rodgers, Cleveland, Van den Oord, Rowe, 2000). This introduces a third factor that may be the cause of the low intelligence

levels of children and the size of the family: the intelligence of the parents. By recognizing that the level of intelligence of a person has a wide range of influential factors, it seems necessary to examine other traits that lead to achievements. People can be incredibly successful at overcoming academic and intellectual challenges even without high IQs because of their determination and confidence. Studies surrounding intelligence and birth order are often inconclusive but a study on the academic success of students and birth order which factors in more personality traits could be more indicative of future successes.

Extraversion is one facet of personality that can be indicative of success in both professional and personal realms. According to Beck, Burret, & Vosper (2006), extraversion is comprised of two components: sociability and dominance. Extroverted people with a high level of sociability will likely be surrounded by people in their personal lives and be considered socially successful. Those who are extroverted with a high level of dominance are able to easily advocate for themselves and pursue their goals without fear of obstacles. Extraversion is frequently measured among people of all birth orders, but Beck et al. (2006), distinguished between the facets of extraversion on sibling positions in their birth order study. It was determined that first-borns have the highest level of dominance and last-borns have the highest levels of sociability (Beck et al., 2006). This study supports that personality traits may be linked to birth order and how these traits directly affect the professional and personal experiences an adult may have. Beck et al., thoroughly explore the facets of extraversion, but do not

explore any other personality characteristic nor do they explore how gender may affect the facets of extraversion. Extraversion is one of the Big Five Personality Traits that also include openness to experience, conscientiousness, agreeableness, and neuroticism (Hoyer & Roodin, 2009). The importance of these five established personality traits will be discussed later.

In a study called “Differential Effects of Birth Order and Gender on Perceptions of Responsibility and Dominance” the sibling and gender roles are both taken into account to explore how traits such as responsibility and dominance are influenced (Harris & Morrow, 1992). In general, the researchers found that females are more responsible than their male counterparts, and males are more dominant than their female counterparts. Both of these traits were shown to generally decrease with birth order, meaning that the eldest female was the most responsible and the eldest male the most dominant. This interactive effect of birth order and gender was also seen among the responsibility levels of males and the dominance levels of females. Similar to how the eldest female was the most responsible, the eldest male was also the most responsible, although still less responsible than the eldest female. However, the patterns of dominance among females proved to be just the opposite. Harris & Morrow (1992) found that it was the youngest female who was the most dominant, although still less dominant than the oldest male. This study supports the importance of examining the interactive effect of birth order and gender. As discussed earlier, there was another study regarding dominance and birth order that did not examine gender effects. These two studies came to different conclusions because it was

generalized that all earlier-born children are more likely to be dominant, regardless of gender. Aside from responsibility and dominance, there are likely many other traits or experiences that are affected by not only birth order, but gender order.

In 2008 Szobiova conducted a study similar to Harris & Morrow (1992) where birth order and gender were both examined in their influence on personality dimensions of adolescents. Szobiova (2008) used the Big Five personality characteristics: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. By using a personality test, Szobiova was able to chart the prominent personality traits and characteristics of the various birth orders. She found that first-borns scored high in neuroticism and conscientiousness, middle and last-borns scored highest in agreeableness with middle-borns being especially open to experience, and only-borns scored the highest in neuroticism and extraversion. She attributed the notable scores of first-borns to the high levels of responsibility that first-borns experience and the pressure of perfectionism (Szobiova, 2008). She also discussed the tendency for middle-borns to be sensitive to injustice and to demonstrate a high level of empathy that is also found in last-borns. Only-borns were considered to be more critical and independent, which certainly manifested in their neuroticism and the dominance as related to extraversion. After describing the birth order patterns, Szobiova (2008) discussed the sibling and gender constellation within families. She found that when siblings were all of the same gender, they had higher levels of conscientiousness and extraversion. Her second notable finding was that males

growing up with both a brother and a sister had much higher levels of agreeableness (Szobiova, 2008). This study is one of the most complete attempts to understand sibling and gender roles. While this study focuses on adolescents, it is important to examine other important stages in development to better understand how adults are affected by birth order.

A study on “The Relationship of Psychological Birth Order to Irrational Relationship Beliefs” focused solely on adults and adult lifestyles (Kalkan, 2008). Kalkan defined irrational relationship beliefs as “unrealistic beliefs of individuals about themselves, about the nature of relationships, and about their partners in relationships...that may lead to self-defeating behavior and poorer adjustment in romantic relationships (Kalkan, 2008, p. 457). Kalkan also believed that a person might have a psychological birth order that could deviate from the actual birth order, implying that a last born might take on the role of a first born, therefore psychologically identifying as a first-born. This could be the tutor role that was identified earlier as a typical role that a first-born takes on. Kalkan (2008) and many others see a person’s birth order as the confluence of roles a person undertakes as an older sibling, a younger sibling, both, or neither. The role of the first born is one of influence and authority. Kalkan characterizes first-borns as having higher academic achievement and cognitive abilities, as well as high self-esteem and low irrational relationship beliefs. Middle-borns assume the peacemaker role and are often arbitrators to help others achieve justice (Kalkan, 2008). This supports Szobiova’s (2008) claim that middle-borns are sensitive to injustice. Kalkan (2008) asserts that middle-borns have lower self-esteem and

self-worth, and often have unlovability beliefs in romantic relationships. Last-borns are characterized by their dependency, immaturity, and need for protection, and may struggle in relationships because they attempt to gain significance by pleasing others (Kalkan, 2008). Finally, only-borns are the center of attention in their families and scrutinized by parents because of it. This can lead to irrational relationship beliefs (Kalkan, 2008). The significance of Kalkan's study is in his description of the roles different birth orders typically assume and how these roles can affect romantic relationships.

Kalkan's concept of psychological birth order implies that there are many people who do not take on the role of their actual birth order and instead adopt the role of a different birth order. In Sulloway's (1996) famous book Born to Rebel: Birth Order, Family Dynamics, and Creative Lives, he takes a different point of argument. Sulloway (1996) claims that there are distinctive roles that first-borns and later-borns take on. He explains that first-borns identify with power and authority and are more likely to accept conventional values and status quo (Sulloway, 1996). They often achieve breakthroughs in already established fields and tend to be overrepresented among scientists. Additionally, Sulloway (1996) asserts that later-borns are more likely to resist authority and question the status quo. He refers to later-borns as champions of conceptual change and upheaval who are more likely to make radical breakthroughs and act as catalysts of societal change. Sulloway (1996) and others have used this framework to analyze history using birth order theories. One researcher gave example of notable first-borns such as Albert Einstein and Hilary Clinton, and notable later-borns including

Harriet Tubman and Nicolaus Copernicus (Smilgis, 1997). Sulloway (1996) believes the achievements of important historical and contemporary figures were facilitated by their birth orders. He does not discuss radical first-borns or authoritative and conventional later-borns, but the existence of people who fit into these categories would support Kalkan's (2008) concept of psychological birth order in his study on irrational relationship beliefs.

Kalkan's (2008) study of relationship beliefs is intriguing because it discusses the challenges adults may have in relationships because of their psychological birth orders, but he does not discuss how young adult experiences may affect adult relationships or how birth order may affect less serious relationships or even platonic relationships that often take place during young adult years. The past relationships between children and parents are another important relationship that can be examined to understand the experiences of adults. In a study conducted in 2009, adults were questioned about recalled parental treatment in order to analyze if there was a birth order causation (Davey, Tucker, Fingerman, Savla, 2009). Davey et al. (2009) found that daughters reported lower maternal affection than sons, and that fathers were less affectionate to their children in larger families. Last-borns reported the highest rates of close relationships with parents. Davey et al. (2009) proposes a relationship between birth order and past relationships with parents, but they do not thoroughly explain how these diverse experiences may significantly affect the personal lives and social experiences of a person after childhood. Without an analysis of what types of parent-child relationships are the most advantageous or harmful, there is no

way to understand the positive and negative consequences of each type. This missing component in the Davey et al. (2009) article makes the study unhelpful in the analysis of adult behavior.

One study that effectively illustrates the benefits and hindrances of birth order examines the identity development in adolescence and emerging adulthood (Wong et al., 2009). Wong et al. (2009) proposed that identity formation involves identity exploration and commitment. These are both necessary for a person to engage in self-discovery and pursue a fulfilling life. Wong et al. (2009) found that first-borns possess the highest commitment to identity, followed by middle-borns and with last-borns experiencing the lowest levels of identity commitment. The researchers suggest that first-borns imitate their parents during the identity exploration phase and find it easier to commit to their chosen identity because of these role models (Wong et al., 2009). Similarly, middle children, especially the second child, often imitate the oldest child during identity exploration. Last-borns tend to struggle more during identity exploration and therefore have lower levels of identity commitment. The reason behind this can be attributed to any of the other studies that have demonstrated a last-born child's tendency to be more dependent and immature. Wong et al. (2009) did not examine the identity development of only children, but they included a brief gender analysis in their birth order study. It was found that having siblings of different sexes decreased the level of commitment the adolescents had toward their identities. Wong et al. (2009) theorized that this may be because diversity in genders meant fewer role

models to base one's identity after. This was the first study to imply that there could be advantages to having siblings of only one gender.

Clearly, there are many areas of both agreement and disagreement throughout the literature on birth order effects. While every researcher examined so far has concluded there are measurable effects of birth order ranging across academic, social, professional, and personal realms, there have also been studies that have concluded that no such effects exist. Dunkel, Harbke, & Papini (2009) studied the effects of birth order on personality and identity and found that birth order was of little importance in predicting individual differences. Using the Big Five Personality Traits and four different identity styles characterized by the personal, social, and psychological resources used to explore and commit to an identity, Dunkel et al., concluded that there was no indication of any birth order patterns. This study contradicts everything that has already been reviewed, and it raises important questions about who and what has been studied in the past. Based on the research that has already been conducted and the discrepancies and unexamined relationships and populations, it is clear that further research must be conducted to understand the effects of birth order. A gender analysis should be included in future birth order studies, and populations should include people who are trying to accomplish a similar goal if researchers are to study achievements and success rates of the different birth orders. It is these gaps in previous research that led me to study sibling and gender roles and their effect on the academic and social success of college students.

Nature of the Study

A quantitative and descriptive statistical research study was used to examine the relationship between birth order and academic and social success among college students. An anonymous survey was answered by 505 Syracuse University students of various ages and class standings. Descriptive statistics were calculated to examine the prevalence of academic and social success among college students and their correlation to birth order roles. The independent variable was birth order, taking into consideration both sibling and gender roles. The dependent variables were academic and social success. This quantitative study determines if a relationship exists between the independent and dependent variables but cannot establish the causation of this relationship. Using the theories and conclusions of previous researchers, I engage in a discussion regarding possible causes of the survey results gathered.

Research Questions

The purpose of this research study was to measure the relationship between birth order and academic and social success rates in college. Birth order consisted of the cumulative effect of sibling role and gender role. An analysis of this intersection was necessary to more fully understand the family experience of each respondent. Five research questions guided the study to investigate these relationships and how people may interpret them. The research questions are as follows:

- 1) Is sibling role related to academic success in college?
- 2) Is gender role related to academic success in college?

- 3) Is sibling role related to social success in college?
- 4) Is gender role related to social success in college?
- 5) Are people satisfied with their birth orders?

Hypotheses

The five research questions led to the formation of five hypotheses, respectively. The five hypotheses are as follows:

- 1) Those who are born first and those who have no siblings will achieve higher levels of academic success than those who have older siblings. It is further hypothesized that those who are both older and younger siblings will have more academic success than those who are only younger siblings.
- 2) Those who have a unique gender will have more academic success than those who have siblings of both similar and different genders, the same gender as all their siblings, or no siblings.
- 3) Those who have older siblings will achieve higher levels of social success than first-borns and only-borns. It is further hypothesized that last-borns will have more social success than middle-borns.
- 4) Those who have siblings of both similar and different genders will have more social success than those who have a unique gender, the same gender as all their siblings, or no siblings.
- 5) Those who are first-born and those with a unique gender will be more satisfied with their birth orders than those who have older siblings and siblings of the same gender.

Definitions of Terms

The subsequent terms used in the research study are relevant to the purpose and understanding of the study.

Birth order – the position of a person in his/her family based on the sibling and gender role among his/her siblings.

Sibling role – the role a person assumes as an older sibling, a younger sibling, neither, or both.

Gender role – the role a person assumes as a son/brother or daughter/sister in relation to other siblings, if any.

Similar gender role – A person who has the same gender as all other siblings.

Unique gender role – A person who has a different gender from all other siblings.

Similar and different gender role – A person who has at least one sibling with the same gender and at least one sibling of a different gender.

First-born – a person who is only an older sibling.

Middle-born – a person who retains the roles of both an older and younger sibling.

Last-born – a person who is only a younger sibling.

Only-born – a person who is neither an older nor younger sibling.

Openness (to experience)- characteristics such as imagination and insight, and those high in this trait also tend to have a broad range of interests (Hoyer & Roodin, 2009).

Conscientiousness - high levels of thoughtfulness, with good impulse control and goal-directed behaviors. Those high in conscientiousness tend to be organized and mindful of details (Hoyer & Roodin, 2009).

Extraversion - characteristics such as excitability, sociability, talkativeness, assertiveness and high amounts of emotional expressiveness (Hoyer & Roodin, 2009).

Agreeableness - attributes such as trust, altruism, kindness, affection, and other pro-social behaviors (Hoyer and Roodin, 2009).

Neuroticism - tendency to experience emotional instability, anxiety, moodiness, irritability, and sadness (Hoyer & Roodin, 2009).

Academic success – the student’s ability to rise to the academic challenges of college and their grade point averages (GPAs).

Social success – the student’s ability to create and maintain personal connections with the people in his/her lives.

Limitations

This study aimed to accurately and conclusively answer the five research questions but certain limitations were found. This study is limited to Syracuse University students who may or may not be representative of larger populations of college students. The anonymous survey was taken by 505 Syracuse University students who were provided with the survey and had the opportunity to complete it. There were limitations in how the survey could be distributed and the level of willingness of respondents to submit their answers. Those who are willing to take voluntary surveys may have different levels of academic and social success than

those who chose not to take the survey, thereby obscuring the survey results because of the population bias. Time limitations made it impossible to hand-administer the surveys to all participants so an online version had to be created and distributed, further narrowing the population I had access to.

Aside from the limitations of who could take the survey, the survey itself had limitations. As will be discussed later, the instrument contained questions that had been designed by me and therefore, had never been previously tested for their validity and reliability. Personal questions were aimed to assess the academic and social success of respondents, but it is unclear how effective these questions were in evaluating these variables. This limits the conclusiveness of the answers to the research questions. This is further limited by the truthfulness of respondents who may have carelessly answered questions or changed their responses as a result of a social-desirability bias. Furthermore, while students were asked for their GPAs, all other responses were based on their perception of academic and social success. This paper considers their perceived academic and social success to be their accurate success levels for the purpose of a comparative analysis. Those who may have overestimated or underestimated their success experiences will likely appear in each demographic which will balance out any bias. Another limitation is that this study did not take into account the age spacing between siblings, which could influence the personal experiences people have with their families.

These limitations will be taken into consideration when answering the research questions and discussing how to use the information to address the

problem statement. Despite the limitations that come with any research study, many conclusions have been drawn within previous birth order literature.

Methodology

The purpose of this study was to determine the relationship between birth order and the academic and social success of college students. Data was gathered using a survey to measure the dependent and independent variables. The independent variable is the birth order of the respondent, which includes both the sibling role and gender role of the respondent. The dependent variables are the levels of perceived academic and social success. The quantitative survey was taken by 505 Syracuse University students. This included 174 first-borns, 83 middle-borns, 170 last-borns, and 63 only-borns. Fourteen respondents did not identify their sibling role. There were 128 respondents who identified as male and 371 who responded as female.

Research Design

Statistical research designs examine how the differences in one variable relate to the differences in another variable (Rubin & Babbie, 2010). For variables to be compared they must first be defined and measured. This study defined birth order as the combined status of the respondent's sibling role and gender role. At first, I had planned to examine only the sibling role, however, gender role later became a concept too important to overlook. The evolution of this definition will be explained later in this section. To identify each respondent's sibling role, students were asked to map out their sibling relationships. They identified how many older brothers/sisters they had and how

many younger brothers/sisters they had. Using this chart, I originally labeled each respondent with one of six sibling roles: first, oldest middle, middle middle, youngest middle, last, and only. This was later changed to four sibling roles: first-born, middle-born, last-born, and only-born. The categories of oldest middle, middle middle, and youngest middle were combined, and the middle-born sibling role was categorized as anyone who was born between the first and the last child.

The reason for this change was to focus on the respondents' experiences as being younger and/or older siblings. Since surveys were taken by individual respondents, and the siblings of these respondents were not examined, I decided it would be inconclusive to determine how unexamined people may have influenced the respondent. Instead I focused on the experience of being an older or younger sibling. Research has shown that having older or younger siblings can affect people in a variety of ways. Previous researchers such as Sulloway (1996) and Kalkan (2008) have explored the roles that siblings take on as older or younger siblings. Therefore, in this study, being a first-born is defined as someone with the role of being an older sibling, but not a younger sibling. A middle-born is someone who is both an older and younger sibling. A last-born is someone who has only the role of being a younger sibling. An only-born is neither an older sibling nor a younger sibling. It is these roles that are examined because previous research has shown that the experiences of acting as an older sibling are different from the experiences of acting as a younger sibling, leading to differences in the advantages and disadvantages students may experience in college.

As my concept of birth order evolved, a second component began to manifest its importance. As already explained, the first component of birth order came to be defined as the sibling role that the respondent played in acting as a younger or older sibling. The second component of birth order came to be known as the gender role. Researchers such as Kidwell (1982), had previously explored the effects of having a gender similar or different to the other siblings in the family. The respondent's gender role was the role the respondent played in being a son/brother or daughter/sister in relation to the other siblings. On the same chart used to determine the original definition of birth order (referred to from here on as "sibling role"), respondents indicated their own gender and that of their siblings. This information was used to determine the role the respondent had in being a male or a female amongst other females and males. I labeled each respondent with one of four gender roles: having the same gender as all other siblings, having a unique gender compared to other siblings, having a gender both similar and different to other siblings, and having no other siblings for gender to be compared to. A person with the gender role of having the same gender as all other siblings could be a male with only brothers or a female with only sisters. A person with the gender role of having a unique gender among siblings could be a male with only sisters or a female with only brothers. A person with the gender role of having a gender both similar and different to other siblings is any respondent who has both a brother and a sister. A person with the gender role of having no other siblings for gender to be compared to is an only-born. Both gender role and

sibling role were measured in order to determine if they influenced academic and social success, or if it influenced how a person perceived his/her own birth order.

Using both sibling and gender role to determine birth order led to the creation of ten distinct birth orders. The first three birth orders are first-borns with the same gender as their siblings, first-borns with a unique gender, and first-borns with siblings of multiple genders. The second set of birth orders include middle-borns with the same gender as their siblings, middle-borns with a unique gender, and middle-borns with siblings of multiple genders. The third set follows the same pattern and includes last-borns with the same gender as their siblings, last-borns with a unique gender, and last-borns with siblings of multiple genders. The tenth birth order is simply the category of only-borns because they have no siblings for their genders to be compared to.

The effects of sibling role and gender role were examined independently and concurrently. The research questions aim to understand how each component of birth order affects academic and social success. This study set out to find patterns among the four sibling roles and the four gender roles, but also the ten birth orders. The sibling role and gender role are each used as independent variables to determine their relationship to the dependent variables, academic and social success.

In this study, academic success is defined as the student's perceived ability to meet the academic challenges of college and their GPAs. Academic success was measured quantitatively through the use of the survey. Personal statements were posed to respondents regarding academic challenges and academic pursuits.

Using a Likert 5-Point Scale, respondents were asked to evaluate their feelings about each statement. They were asked to choose between strongly disagree (1), disagree a little (2), neither agree nor disagree (3), agree a little (4), and strongly agree (5). An example of a statement measuring academic success is “When I do well on a test, it is usually because I am well-prepared, not because the test is easy.” Four questions referred to academic success and the total score of the respondent’s answers became the first component of each respondent’s academic success. The second component was the respondent’s GPA. Each respondent identified the range in which their GPA was located.

Social success is defined in this study as the student’s ability to create and maintain personal connections with the people in his/her lives. Social success was measured in a similar fashion as the first component of academic success. Personal statements were posed to respondents regarding socializing patterns and preferences. Respondents were asked to evaluate to what degree they agreed or disagreed with these statements. An example of a statement measuring social success is “I dislike helping people who are in difficulty.” Eight questions referred to social success, and the respondent’s total score became the person’s overall social success score. Several of the statements, such as the example given, had to be reverse-coded so a lower response indicated a higher social success score. This will be discussed later in this section.

In addition to evaluating a person’s academic and social success through direct questions pertaining to academic and social challenges, respondents were also asked to take a short personality test to evaluate their levels of openness,

conscientiousness, extraversion, agreeableness, and neuroticism. Known as the Big Five, these characteristics are professionally used to evaluate the facets of a person's personality (Hoyer & Roodin, 2009). Previous researchers, such as Szobiova (2008) have found that birth order can affect these aspects of personality, and I believe that these aspects of personality could affect academic and social success. For example, someone who is very agreeable could have more social success while someone who is very neurotic may have less social success. The five characteristics were also measured with a Likert Scale; each characteristic was measured through two questions.

Instrument

Based on the research literature, I designed a survey which I believed would answer my research questions (See Appendix). Some of the questions came from widely used instruments such as a 10-item short version of the Big Five Inventory (Rammstedt & John, 2007) and several questions from two instruments that came from The Center of Inquiry in the Liberal Arts at Wabash College: the Academic Motivation Scale and the Political and Social Involvement Scale. These three instruments were created by professionals and have been used in other studies (Rammstedt & John, 2007).

The questions I designed aimed to assess the respondent's perceived ability to rise to academic and social challenges of college. Success among academic challenges included holding a high GPA, having a high academic achievement motivation, and a self-assessment of the respondent's academic ability. Success among social challenges included maintaining close relationships

with family and high school friends throughout college, creating close friendships with college peers, having the ability to act as a good friend, and engaging in frequent social activities. While my own survey questions have not been professionally tested for their reliability and validity, there was much thought and effort behind defining and measuring variables, and the instrument could be considered to be reasonably reliable and valid for the purpose of this study (J. McFall, personal communication, January, 26, 2012).

After these personal questions were asked regarding academic and social success, questions regarding birth order and other demographic questions were asked. Four questions were used to gather information on how the respondent viewed his/her own birth order. Respondents were asked to rank the four sibling orders from their first choice to their fourth choice. Respondents chose between first-born, middle-born, last-born, and only-born. This question was asked before the respondent was asked to identify his/her own birth order as a way to secure an honest preference.

Following this question, respondents were asked complete a map of their own sibling and gender roles as well as the sibling and gender roles of any and all siblings (See Appendix). The map, as well as all following sibling role questions also took into consideration any multiple-borns, or people who were twins, triplets, etc.

The survey also included demographic questions such as age, major, class standing, and race/ethnicity. Survey questions that were eventually found to be unhelpful in answering the research questions included questions regarding a

respondent's relationship status and questions regarding the sibling roles of parents.

Population

There were 505 respondents who took the anonymous questionnaire, and all of them were undergraduate students at Syracuse University. This population included people of various class standings and of numerous majors. While the 505 respondents only constituted a small sample of Syracuse University, the diversity within the sample indicates it could be representative of the entire Syracuse University population. The results from this sample can also be used to better understand the national population of college students.

College students are seeking higher education in a field they will likely pursue in their future. Their time in college should be the height of their academic success because of the personal interest they have invested in their studies. This time should also be the height of their social success because of the social environment promoted by college campuses. There are endless opportunities to meet new people and engage in new hobbies. If those who are disadvantaged by their sibling or gender roles can be assisted in overcoming these disadvantages, their college experiences can give them every chance to become academically and socially successful.

Data Collection

After the project was planned, the instrument was designed, and the population was chosen, the survey was then distributed and collected. I contacted Syracuse University professors of large lectures and received permission from

several to distribute the survey in class or email the survey to be filled out and emailed back. This was a very challenging process because even if professors were able to allow this, the responses collected had to then be individually typed up in order to analyze the data with a computer program. There were 103 hard-copies of the survey that were personally handed to willing respondents, and 30 that were answered on a Microsoft Word document and emailed to me. After two weeks in this phase of the research project, I created an online version of the survey through SurveyMonkey. The link to this survey was distributed to many more professors, as well as large student groups such as the Renée Crowne University Honors Program and the Advocacy Center Volunteers. The combined hard-copies, emailed versions, and SurveyMonkey surveys taken was 505. This included 116 freshman, 146 sophomores, 92 juniors, 126 seniors, 4 part-time students, and 21 students who did not specify their student level. As already stated, all respondents were undergraduate Syracuse University students.

Informed Consent

A large, unknown number of students were asked to take the survey, but only 505 did so. The survey was completely voluntary and students also had the option to leave questions unanswered. Students were told the survey was being used for an undergraduate capstone thesis for the Renée Crowne University Honors Program. Students were also provided with a brief description of the survey topic. Their participation was encouraged, but the decision to participate was solely their own, and respondents gave their informed consent by choosing to participate. Tracy Crompton from the Institutional Review Board was contacted on

11/29/11, but no formal permission was needed to involve student participants because I had no plans to publish the results.

Confidentiality

The survey that was distributed in classes was completely anonymous and students were told not to put their names on it. The online version was also anonymous and the results were not attached to the responder in any way. Two professors emailed the Microsoft Word version of the survey to their students because they were unable to allow the survey to be distributed and collected during class time. I assured the professors and students that all received responses would be printed out before being reviewed to ensure that the responses would remain unattached to their email source. Each completed survey, including every online and paper version, was assigned an identification number which allowed me to find and review each individual response without knowing the identity of the person to whom it belonged.

Data Analysis

All of the responses had to be coded before any data analysis could be done. The personal statements using the Likert Scale already had numerical values that could be used in further calculations, but some had to be reverse-coded. After this was done, I calculated the total score for academic success, social success, openness, conscientiousness, extraversion, agreeableness, and neuroticism for each person. Higher numbers indicated higher amounts of these traits. These individual total scores were then used to find descriptive statistics and correlations such as the frequency of each score within each sibling and

gender role, the mean scores of each sibling role and gender role, and the degree of correlation between the dependent and independent variables.

Demographic questions were also simple to code because each of the responses could easily be assigned a number. For example, these questions asked respondents to choose between five or more choices, and each choice was then numbered 1-5 and up.

The last types of question that needed to be coded regarded the sibling and gender roles, and sibling role preferences. Using the siblingship map from the survey, I was able to assign each respondent a sibling and gender role. Each of these roles was assigned a number. The four questions asking respondents to rank each sibling role were fairly simple to code because each sibling role was ranked as either the first, second, third, or fourth preference of each respondent. The numbers 1-4 were used in coding each of these questions.

After all of the coding and reverse-coding was complete, the program SPSS was used to determine the relationships between the independent and dependent variables and to answer the research questions. Research Questions One and Two regarded academic success, requiring the examination of the individual and mean academic success scores for people belonging to each sibling and gender role. They also required analysis of the GPA ranges identified for each sibling and gender role. I used sample t-tests to compare the mean academic success scores of all sibling roles for Question One and all gender roles for Question Two. I also used a sample t-test to compare the mean academic success scores for each of the ten birth orders. To ensure the results were statistically

significant, I used Pearson's Chi-Square Test to calculate the correlation between academic success and sibling and gender role. Questions Three and Four required an examination of the social success scores across each sibling and gender role. I used sample t-tests to compare the mean social success scores of all sibling roles for Question Three and all gender roles for Question Four, and I also compared the mean scores for each of the ten birth orders. Then I used Pearson's Chi-Square Test to calculate the correlation between social success and sibling and gender role to ensure the results were statistically significant. Question Five was answered by inspecting the frequencies of each preference ranking for each sibling role, and assessing how these rankings could be further sorted by sibling and gender role to see which people were more likely to rank their own sibling role as the best and which people were unhappy with their own sibling roles. The survey results as analyzed by SPSS are provided and explained in the Results section that follows. This section does not answer the research questions, it provides the results of the data analysis.

Results

There were 505 students who took the anonymous survey. The results of this survey will be presented in this section whether or not they help to answer the five research questions. The data will be interpreted and important numbers and anomalies will be pointed out. The results shown are illustrated through a variety of tables, charts, and graphs. Many of the tables and figures are compared with one another to demonstrate which patterns are consistent and which are

conflicting. It will not be until the next section that the data is used to answer the research questions or make any type of argument.

All of the respondents were asked to identify their sibling roles in order for me to examine similarities and differences. The results of this survey question can be seen in Table One. As shown, there were fifteen respondents who did not specify their sibling roles, totaling 2.9% of the 505 who took the survey. The Percent column shows the percentage of each identified sibling role out of the total pool of respondents. The Valid Percent column shows the percentage of each identified sibling role out of all who identified their role. The Cumulative Percent column demonstrates how the Valid Percentages were rounded to a tenth of a percentage, leaving a very small discrepancy between the actual percentages recorded and the percentages that were used for further calculations.

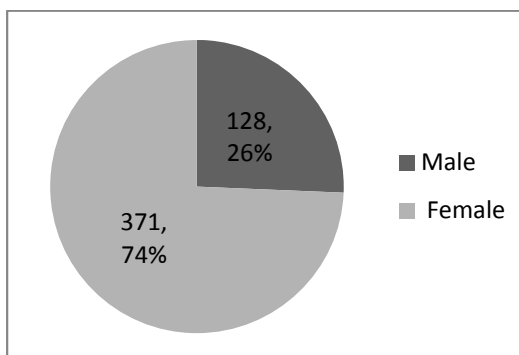
Table One: Sibling Role

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	First-Born	174	34.5	35.4	35.4
	Middle-Born	83	16.4	16.9	52.3
	Last-Born	170	33.7	34.6	87.0
	Only-Born	63	12.5	12.8	99.8
	Total	491	97.2	100.0	100.0
Missing	System	15	2.9		
Total		505	100.0		

As shown in Table One, first-borns comprised the largest group of respondents who identified sibling roles, followed very closely by last-borns. There were only four more first-borns than last-borns. Only-borns comprised only 12.8% of those who identified their sibling role, and this 12.8% contained 63 students. There were high enough numbers in all four sibling roles to compare data without fear of misrepresentation that could have otherwise been caused by numbers too small to be significant. These four categories will be used to assess the relationship between sibling role and academic and social success.

Figure One shows the gender distribution of the respondents who identified their genders. There was a much higher rate of females than males. This did not affect the results a person's gender role was defined as the comparison of gender between the respondent and the respondent's siblings. Therefore, the result of having a gender similar or different to siblings was more important than the actual gender identified by the respondent. Gender is shown in Figure One and gender role is shown in Table Two.

Out of the 505 students who took the survey, 497 identified the genders of themselves and their siblings. The results of this question are shown in Table Two. Those who had already identified themselves as only-borns were automatically placed in the "No Siblings" category because they could not select a gender for siblings they did not have. The Frequency Column shows the exact number of respondents who fit the criteria of each of the four gender roles. The Percent, Valid Percent, and Cumulative Percent columns are calculated using the same guidelines as Table One.

Figure One: Gender Distribution**Table Two: Gender Role**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No siblings	63	12.5	12.7	12.7
	Same Gender as Siblings	153	30.3	30.8	43.5
	Unique Gender	158	31.3	31.8	75.3
	Siblings of Multiple Genders	123	24.4	24.7	100.0
	Total	497	98.2	100.0	
Missing	System	8	1.6		
Total		505	100.0		

According to these numbers, of the respondents who had siblings, 153 had the same gender as their siblings (ie. a female with only sisters or a male with only brothers), 158 had a unique gender compared to their siblings (ie., a female with only brothers or a male with only sisters), and 123 respondents had both a brother and a sister. These high numbers for each gender role will allow conclusions to be drawn about the relationship between gender role and academic and social success.

As has been discussed in previous sections, birth order is comprised of both sibling role and gender role. Figure Two graphs how many people from

each sibling role had each gender role. This intersection of sibling and gender role creates the ten birth orders discussed earlier. There were 490 students who completed the sibling map on the survey and whose birth orders could therefore be determined. Each section of each bar represents one of the ten birth orders. The size of each birth order is demonstrated by the area it occupies in Figure Two. The frequency percentages for each of the ten birth orders can be found in Table Three. These ten birth orders will later be compared based on their average academic and social success scores.

Figure Two: Determining Ten Birth Orders Using Sibling Role and Gender Role

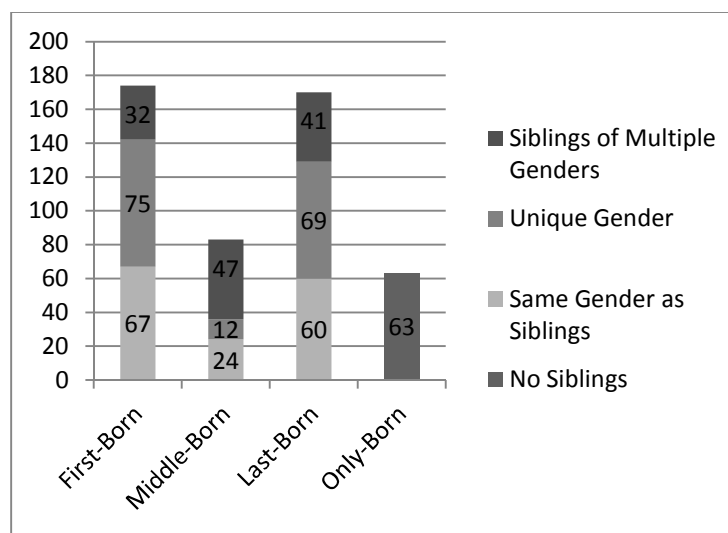


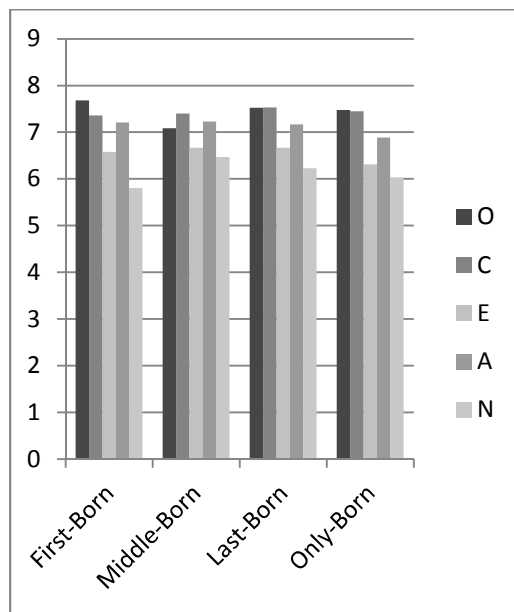
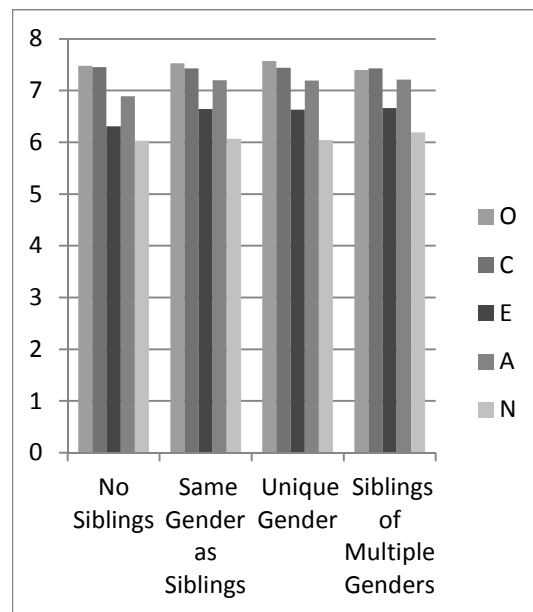
Table Three: Ten Birth Orders

Sibling Role	Gender Role	Frequency	Percent	Cumulative Percent
First-Born	Same Gender	67	13.7	13.7
	Unique Gender	75	15.3	29
	Multiple Genders	32	6.5	35.5
Middle-Born	Same Gender	24	4.9	40.4
	Unique Gender	12	2.4	42.8
	Multiple Genders	47	9.6	52.4

Last-Born	Same Gender	60	12.2	64.6
	Unique Gender	69	14.1	78.7
	Multiple Gender	41	8.4	87.1
Only-Born	(No Siblings)	63	12.9	100
Total		490	100	100

The results from the personal questions on the survey will show the varying experiences of college students trying to achieve academic and social success. The relationships between both sibling roles and gender roles will be explored to show which roles yield the highest success rates. Figures Three and Four show how sibling role and gender role each independently relate to the Big Five Personality Characteristics: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.

By comparing Figures Three and Four, it appears that there are larger discrepancies between the Big Five Traits and sibling role than there are between the same traits and gender role. Figure Three shows that the mean scores of openness and neuroticism fluctuate across all birth orders while conscientiousness remains relatively stable. Extraversion appears to be very similar between first-borns, middle-borns, and last-borns, but slightly decreases for only-borns. This is also the pattern of agreeableness. In Figure Four, the No Siblings column measures the same population as the only-born column in Figure Three, and the results in Figure Four show the same patterns of decreased rates of extraversion and agreeableness among students with no siblings. Both neuroticism and conscientiousness slightly increase among students who have both brothers and sisters.

Figure Three:**Sibling Role and Personality****Figure Four:****Gender Role and Personality**

Personality traits are explored as a basis for indicating differences that may or may not exist between the different sibling and gender roles. The purpose of the study was to examine the relationship between academic and social success among birth orders. First, I examine rates of academic and social success among each sibling and gender role in Figures Five and Six based on their responses to personal statements from the survey. The highest perceived academic success score that could be achieved from these questions was a 20. Very low scores were considered to be below 9, low scores were between 9-12, high scores were between 12-16, and very high scores were above 16. These four ranges were used later to calculate the degree of correlation.

In both Figures Five and Six, mean academic scores vary less than one point between one another. Even so, there are still measurable differences. Figure Five shows that first-borns have the lowest rate of academic success

(14.42) while last-borns have the highest (14.72). Figure Six shows the relationship between gender role and academic success. With a score of 14.81, those who a unique gender among their siblings have the highest rate of academic success, while those who share the same gender as all their siblings only scored 14.37 out of the 20 possible points. These small differences proved to be statistically significant when I used Pearson's Chi-Square Test to calculate the correlation between academic success and sibling role and academic success and gender role. For academic success and sibling role the Phi coefficient from this test was .153 and the Phi coefficient for academic success and gender role was .127. These are significant associations between the independent and dependent variables.

Academic success was also explored by examining GPA ranges, as shown in Figures Seven and Eight. First-borns included a higher percentage of respondents to achieve the highest GPA range (62.6%), followed by last-borns (58.8%), only-borns (56.5%), and middle-borns (54.9%). These are different from the perceived academic success patterns of sibling roles that were shown in Figure Five. While Figure Five and Figure Seven seem to contradict each other, Figure Six and Figure Eight both show that those with a unique gender are more academically successful in terms of their academic experiences and grade-point averages. Results show that 64.3% of students with a unique gender scored in the highest GPA range.

Figure Five:

Sibling Role and Academic Success

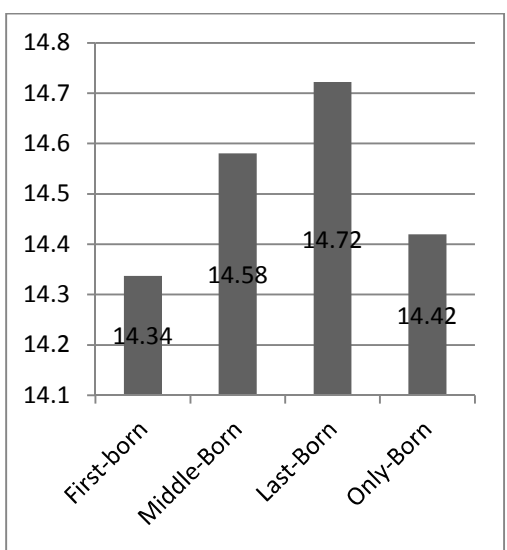


Figure Six:

Gender Role and Academic Success

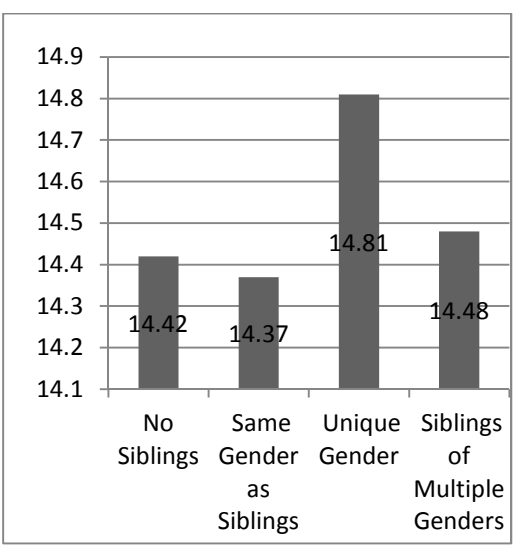


Figure Seven: Sibling Role and GPA

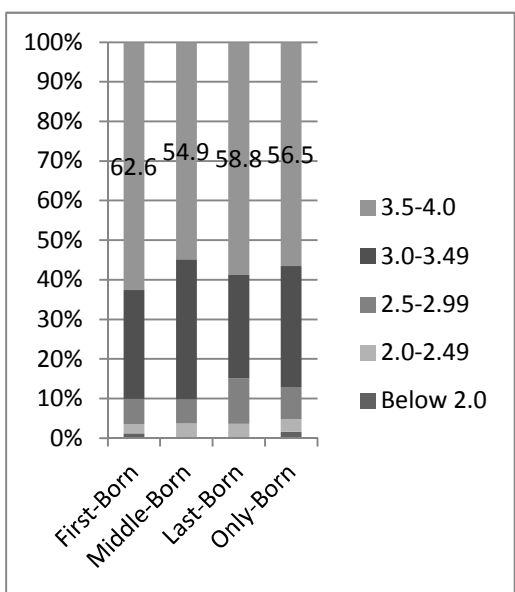
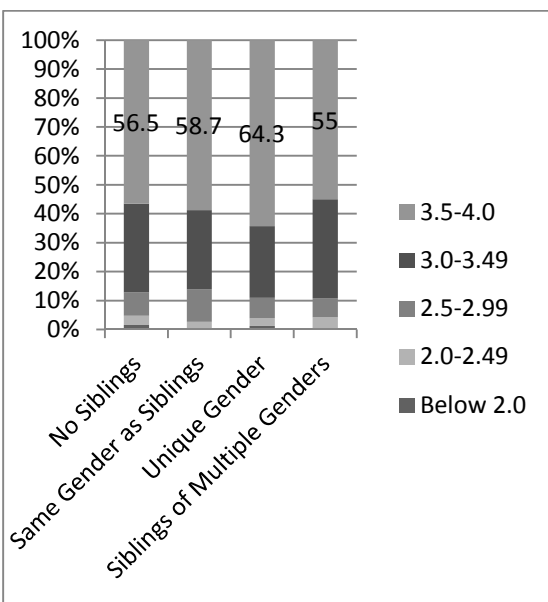


Figure Eight: Gender Role and GPA



While the independent effects of sibling role and gender role on academic success are important to examine, their combined effect must be explored to examine the ten birth orders as outlined in Table Three. The mean academic success scores (derived only from the personal statements) were calculated for each of the ten birth

orders. The comparison chart can be found in Table Four. A striking pattern among middle-borns and last-borns is that those who have a unique gender scored significantly higher than those who had the same gender as all of their siblings. For middle-borns, those with the same gender scored 13.86 out of 20 while those with a unique gender scored 15.67. These two scores show the highest and one of the lowest scores out of all ten birth orders. Middle-borns who had siblings of multiple genders fell in the middle of this range with an average score of 14.64. The same result can be seen among last-borns, with a high score of 15.03 for those with a unique gender, and a low score of 14.34 for those with the same gender as their siblings. For first-borns, having a gender that was either the same as all siblings or different from all siblings made no difference, with both averaging the same score of 14.48. This number is also very close to the score that only-borns averaged at 14.42.

Table Four: Birth Order and Academic Success

Sibling Role	Gender Role	Academic Success Mean
First-Born	Same Gender	14.48
	Unique Gender	14.48
	Multiple Genders	13.72
Middle-Born	Same Gender	13.86
	Unique Gender	15.67
	Multiple Genders	14.64
Last-Born	Same Gender	14.34
	Unique Gender	15.03
	Multiple Gender	14.76
Only-Born	(No Siblings)	14.42

While the range of academic scores was very small when examining only one of the components of birth order, these fascinating results show much more

significant deviations when birth order is comprised of both sibling and gender role. These patterns will be explored later in the discussion section.

The relationship between birth order and perceived social success is examined in much the same way that academic success was examined. There were eight personal statements used to evaluate social success, and the maximum total score a respondent could receive was a 40. For Pearson's Chi-Square Test to be calculated, scores were sorted into very low scores of 16-22, low scores of 22-28, high scores of 28-34, and very high scores of 34-40. The mean scores for each sibling role can be found in Figure Nine and the mean scores for each gender role can be found in Figure Ten.

Figure Nine:

Sibling Role and Social Success

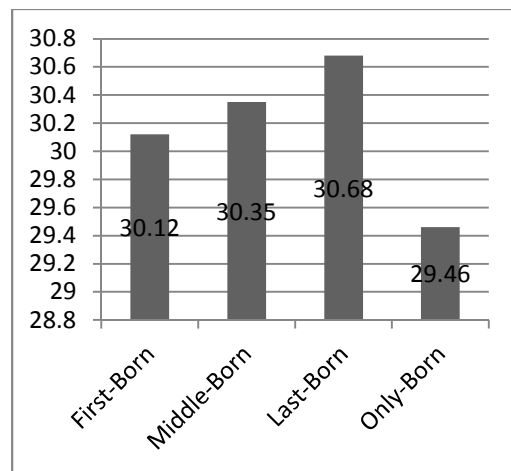
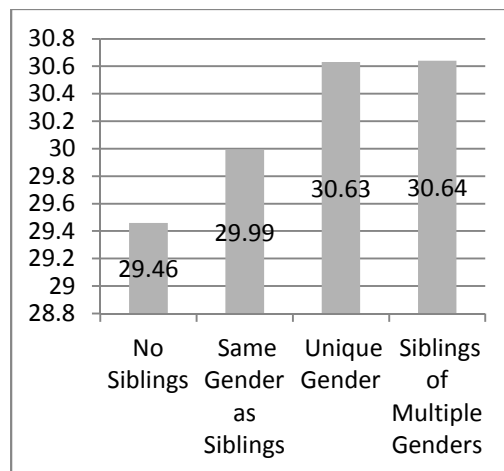


Figure Ten:

Gender Role and Social Success



Sibling roles show that last-borns have the highest rate of social success (scoring 30.68), followed by middle-borns (30.35), first-borns (30.12), and only-borns (29.46). For respondents with siblings, those with siblings of multiple genders scored almost the same exact high score as those with a unique gender (30.64 and 30.63, respectively), while those who share the same gender as their

siblings scored a lower average of 29.99. These results were found to be statistically significant with a Phi coefficient of .127 for social success and sibling role and .152 for social success and gender role. The relationships between both components of birth order and social success are graphed above, but it is important to remember that it is the combined effect of both sibling and gender roles that create birth order effects. The mean scores of each of the ten birth orders are calculated in Table Five.

Table Five: Birth Order and Social Success

Sibling Role	Gender Role	Social Success Mean
First-Born	Same Gender	29.91
	Unique Gender	30.12
	Multiple Genders	30.58
Middle-Born	Same Gender	29.08
	Unique Gender	30.08
	Multiple Genders	31.09
Last-Born	Same Gender	30.56
	Unique Gender	31.21
	Multiple Genders	29.92
Only-Born	(No Siblings)	29.46

Figure Nine had shown that last-borns have a higher rate of social success and Table Five shows that this rate is at its highest for last-borns who have a unique gender (31.21). The birth order for the lowest mean score of social success is middle-borns who have the same gender as all of their siblings (29.08). Both first-borns and middle-borns show that having the same gender as siblings is

associated with lower rates of social success, while having siblings of multiple genders is associated with higher rates. For middle-borns with siblings of multiple genders, the mean score is 31.09, much higher than it is for those with the same gender. For first-borns, those with the same gender averaged a score of 29.91 and those with siblings of multiple genders averaged a score of 30.58. Only-borns, as illustrated by Figures Nine and Ten appear to have less social success, and they take the place of the second lowest scoring birth order.

Data was also collected on how respondents viewed their own sibling roles. Their overall preferences are shown in Figure Eleven. The first preferences of respondents included all four sibling roles, but responses indicated that being first-born is highly desirable and 37.4% of respondents chose it as their first preference with another 35.4% selecting first-born as their second preference. The most frequent ranking of last-borns was as the second preference and the most common ranking of a middle-born was third. Only-borns were identified as the last choice of respondents in 76.7% of the responses.

Figure Eleven shows that the most common overall ranking is to be first-born, then last-born, middle-born, and only-born. Figure Twelve takes a closer look at how each sibling role viewed its own specific sibling role. As can be expected from Figure Eleven, first-borns overwhelmingly enjoy their roles as being first-borns. 71.3% of first-borns ranked their own sibling role as their top preferences. The majority of last-borns also ranked their own sibling role as their top choice, although 31.8% thought otherwise. For middle-borns and only-borns,

less than half of respondents with these sibling roles identified it as their first choice.

Figure Eleven: Overall Preferences of Sibling Role: First, Last, Middle, Only

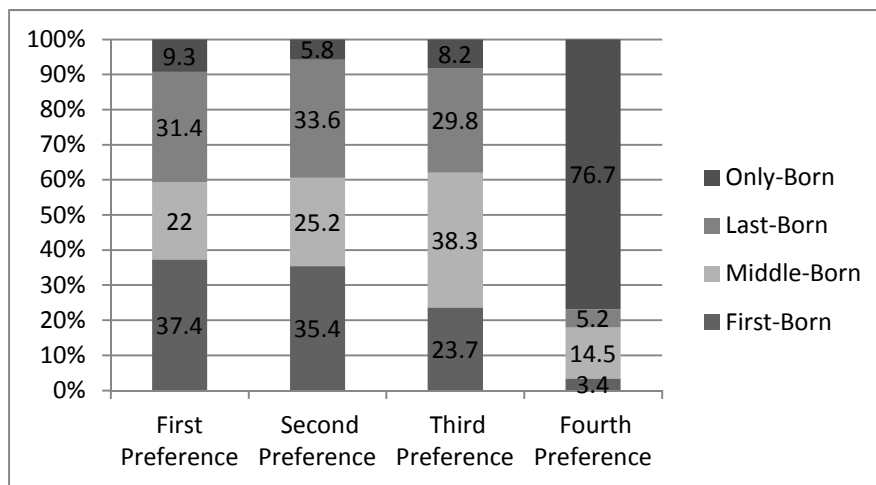
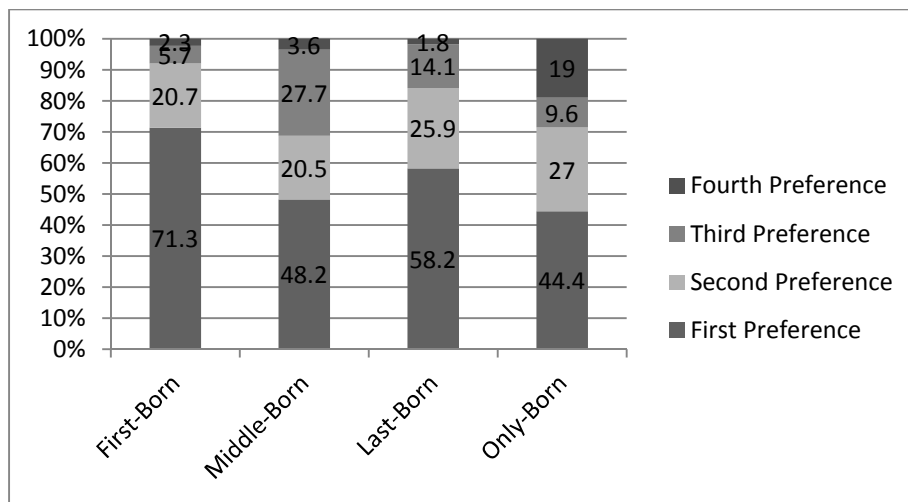


Figure Twelve: How each Sibling Role viewed their own Sibling Role



These figures show that some respondents are less likely to view their sibling roles positively. Both only-borns and middle-borns are more likely to wish they had the ability to change their sibling roles. An even closer look was done on middle-borns to see how these numbers related to gender role. This

could not be done for only-borns because they do not have siblings for their genders to be compared to. The results of how middle-borns of each gender role perceived their sibling role are shown in Table Six. These results can be compared to the preferences of first-borns, as shown in Table Seven.

Table Six: Perceptions of Middle-Borns by Gender Role

		Middle-Born Rankings				Total
		1.00	2.00	3.00	4.00	
Gender Roles	Same Gender	11	4	8	1	24
	Unique Gender	8	2	1	1	12
	Multiple Genders	21	11	14	1	47
Total:		40	17	23	3	83

Table Seven: Perceptions of First-Borns by Gender Role

		First-Born Rankings				Total
		1.00	2.00	3.00	4.00	
Gender Roles	Same Gender	49	11	4	3	67
	Unique Gender	50	20	4	1	75
	Multiple Genders	25	5	2	0	32
Total:		124	36	10	4	174

The first column under Middle-Born Rankings shows the number of middle-borns who selected middle-born as their first preference. Less than half of middle-borns who have the same gender as their siblings selected middle-born as their first choice. Out of the 24 middle-borns with the same gender as their siblings, only 11 viewed being middle-born as the best possibility. This is also

true for middle-borns who have siblings of multiple genders. Out of the 47 middle-borns with siblings of multiple genders, 21 selected middle-born as their first preference, 11 selected it as their second preference, 14 selected it as their third preference, and one selected it as the fourth preference. These numbers are consistent with Figure Twelve, which showed that less than half of all middle-borns perceive their sibling role as the best. A striking figure is found when examining the birth order of middle-borns with a unique gender. There were only 12 respondents with this birth order, but two-thirds of them selected middle-born as their top preference. This rate is far higher than middle-borns of any other gender role. These differences across the gender roles of middle-borns do not exist among first-borns. Table Seven shows that the majority of first-borns (approximately two-thirds), regardless of gender role, are likely to prefer their own sibling order over all the others.

All of the data that has been presented shows the results of the survey used to determine the relationship between birth order and academic and social success. In this section, the results have been illustrated and interpreted through the use of tables and graphs. In the next section, the results will be used to answer the five research questions and determine if the five hypotheses were supported or refuted.

Discussion

The purpose of this research project was to examine the relationship between birth order and academic and social success in college. The research questions addressed this goal by asking how both sibling role and gender role are

related to academic success in college. Using the responses of the 505 students who took the survey, the five questions can be answered and the five hypotheses can be tested.

Question One: Is sibling role related to academic success in college?

Hypothesis One: Those who are born first and those who have no siblings will achieve higher levels of academic success than those who have older siblings. It is further hypothesized that those who are both older and younger siblings will have more academic success than those who only are only younger siblings.

Figure Five shows the relationship between sibling role and academic success and Figure Seven specifically focuses on sibling role and GPA. While Figure Five shows that last-borns are the most academically successful and first-borns are the least, Figure Seven shows that first-borns have the highest GPAs and middle-borns have the lowest, although the differences are minimal. These findings contradict each other and may do so for several reasons. One reason is that GPA is not always reflective of academic ability. Another reason is that the survey asked for respondents to identify their GPA range instead of their exact GPA. There were many potential GPAs within each range, which would make it difficult to assess the true spectrum of GPAs across each sibling role.

Neither Figure Five nor Figure Seven support the hypothesis that first-borns and middle-borns are more academically successful than last-borns and only-borns. Last-borns appear to have the highest rates of academic success, but the differences are extremely small. When examining sibling role alone, the role of being an older sibling, younger sibling, both, or neither, does not appear to

influence average academic success. I believe that intra-familial research should be done in this area to examine the rates of academic success of siblings within one family. Outside factors may affect which sibling role performs the best within each family, but this could not be tested in this project because the siblings of each respondent were not surveyed.

Question Two: Is gender role related to academic success in college?

Hypothesis Two: Those who have a unique gender will have more academic success than those who have siblings of both similar and different genders, the same gender as all their siblings, or no siblings.

Figures Six and Eight examine the relationship between gender role and academic success and as well as gender role and GPA. Both graphs show that the population to receive the highest academic success scores and GPAs are those with a unique gender. This supports the hypothesis that those with a unique gender are more academically successful. There are many possible reasons for this correlation. One such explanation is in Kidwell's (1982) theory about the higher self-esteem among middle children with a unique gender status due to special attention received from parents. The perception of being special may raise self-esteem which may improve academic success.

Table Four shows the average scores for all ten birth orders, revealing that middle-borns with a unique gender have the highest academic success scores while middle-borns with the same gender as all their siblings have the second lowest academic success scores, followed only by first-borns with siblings of multiple genders. Later-borns with a unique gender are also more successful than

later-borns with the same gender. The internalized value that comes from having a unique gender role may play a significant part in academic success in college.

While the status of being the first-born is also valuable, the first of three girls may not be perceived as special as the only boy. Without an intra-familial examination, the only experience that is looked at is the personal experience of each respondent. These experiences show that gender role is related to academic success, and that as predicted, those with a unique gender role have higher rates of academic success in college.

Question Three: Is sibling role related to social success in college?

Hypothesis Three: Those who have older siblings will achieve higher levels of social success than first-borns and only-borns. It is further hypothesized that last-borns will have more social success than middle-borns.

The average rates of social success for each sibling role are shown in Figure Nine. The results show that last-borns have the highest rate of social success, followed by middle-borns, first-borns and only-borns. This supports the hypothesis that people with older siblings are more likely to be socially successful than people with only younger siblings and people with no siblings. This can be explained by exposure to social skills. Those who are born later are immediately forced to share resources and affection with parents, while first-borns begin by receiving all of the attention and then must adapt once younger siblings are born.

Another explanation relates to the identity development findings of Wong et al. (2009). This theory explored the identity formation of first-borns, middle-borns, and last-borns, and found that first-borns imitate their parents and middle-

borns and last-borns are more likely to imitate their older siblings. While this may cause challenges for later-borns in their identity exploration and commitment, it could also help them develop social skills because their role models are closer to them in age. First-borns and only-borns who imitate their parents may end up struggling to form social relationships with their peers.

An additional disadvantage for only-borns is the lack of siblings they have to teach them social skills at an early age. Blake (1991) found that only-borns displayed lower levels of sociability and she found the actions associated with this trait to be meeting people, making acquaintances, showing good will, doing things to please others, and avoiding wounding others. These are actions that children with older siblings have more opportunities at earlier ages to learn. This could account for the higher rates of social success that last-borns have and the lower rates that only-borns have. I found that sibling role is related to social success in college.

Question Four: Is gender role related to social success in college?

Hypothesis Four: Those who have siblings of both genders will have more social success than those who have a unique gender, the same gender as all their siblings, or no siblings.

The survey results showed that there is a positive relationship between more gender diversity in a sibling relationship and social success. Figure Ten shows the average rates of social success among the four gender roles and supports the hypothesis. People with siblings of both similar and different genders had the highest average rate of social success, although this was followed

very closely by students with a unique gender. Students with the same genders as all of their siblings had the second lowest average rate of social success and only-borns had the lowest average score. There are several theories that could account for this. The higher rates of self-esteem found by Kidwell (1982) among people with unique genders could account for their high scores in social success. Those who have more positive views of themselves will have the confidence to take risks in social situations and forge social connections.

The high social success rates of people with siblings of multiple genders may be caused by the opportunity of building social skills with people of similar and different genders at a very early age. Children who only have siblings of the same gender may not learn how to interact with children of a different gender and children with a unique gender may suffer from not having a similar gendered person to interact with. If children look to their parents to learn gender roles, they may end up imitating their parents which could make it more difficult to connect with their peers.

The birth order with one of the highest scores of social success includes middle-borns with siblings of multiple genders, as shown in Table Five. These students learned the roles and responsibilities of being both older and younger siblings, while also learning how to interact with people of similar and different genders. Their high rates of social success may come from the multiplicity of learned social skills they acquired as children from their sibling and gender roles. Both sibling and gender role have been found in this study to be related to social success both independently and collaboratively.

Question Five: Are people satisfied with their birth orders?

Hypothesis Five: Those who are first-born and those with a unique gender will be more satisfied with their birth orders than those who have older siblings and siblings of the same gender.

By asking people to rank their preferences of sibling role, it was determined that first-borns were the most likely to rank their sibling role as their first preference. Figure Twelve shows that after first-borns, last-borns were the second most likely to prefer their sibling role, middle-borns were the third most likely, and only-borns were the least likely to rank their sibling role as their first preference. Both middle-borns and only-borns ranked themselves as having the best sibling role less than 50% of the time. This supports the hypothesis. The high satisfaction rate of first-borns could be attributed to the significant amount of time they spend with their parents. Lindert (1977) found that first-borns had the most one-on-one time with their parents, especially when accounting for the special attention received before any other children were born. Lindert (1977) also found that last-borns receive more attention and encouragement than middle-borns as children. The identity of being either the oldest and/or youngest in the family each give a person a special role. The attention a child receives compared to his/her other siblings may play a role in a young adult's perception of sibling roles.

While only-borns arguably receive the most attention from parents because of the lack of other siblings, the lack of siblings also denies them the chance to receive attention from older or younger siblings. The lack of constant

social interactions may cause some only-borns to feel lonely at times. Only-borns were the least likely to rank their sibling role as the best and the most likely to rank it as the worst. Even so, the most common response of only-borns was ranking their sibling role as their first preference, even if this was only 44.4% of the time. It is clear that many only-borns are pleased with their sibling role because of the undivided attention they received from family.

Table Six shows that middle-borns were more likely to view their sibling role favorably when they had a unique gender, which also supports the hypothesis. Kidwell's (1982) findings about higher self-esteem for middle-borns with a unique gender may be one reason that those with a unique gender are more satisfied with their sibling roles. It is possible that those with a unique gender perceive themselves as highly valued in their families, which could increase self-esteem and give them a positive view of their sibling roles.

This research has shown that many people are comfortable and pleased with their birth orders, but there are also many people who are not, mainly only-borns and middle-borns who do not have a unique gender. These self-perceptions may also influence academic and social success, which is why only-borns and middle-borns who have the same gender as their siblings scored lower than other birth orders in the academic and social success areas. Middle-borns with the same gender as their siblings and only-borns held the two lowest scores in Table Four and Table Five, and were less likely to view their sibling roles favorably. While their scores are similar, the disadvantages that these people have in college are likely caused by different factors. The lack of uniqueness for middle-children

with the same gender as their siblings may affect their self-esteem and sense of value they receive from their parents. For only children, the attention they receive from their parents may not compensate for the lack of siblings to play with in their development of social skills and their exploration of identity. The conclusion section will address how these disadvantages can increase the likelihood of experiencing depression in college, and how these disadvantages can be addressed by knowledgeable professionals and family members so as to prevent mental health struggles.

Conclusion

The purpose of the study of Birth Order and the Academic and Social Success of College Students was to examine the relationships between birth order (consisting of sibling and gender role) and academic and social success experiences in college. The purpose of this research was to learn which birth orders experienced the lowest rates of academic and social success and to explore the reasons for these lower scores and the disadvantages these students may be at in their goal to create a positive college experience. The issue of students having negative college experiences has received much attention in recent years because of the rising rate of depression among college students. By understanding which birth orders are at a disadvantage, interventions may be put in place which could maximize academic and social success and reduce the rate of depression among college students.

Research questions were asked regarding how sibling role and gender role related to academic and social success rates. A research question was also asked

about how people perceived their own sibling roles. It was found that two birth orders in particular had consistently low scores in academic success, social success, and satisfaction rates of their own sibling roles. The two birth orders that were found to struggle the most with these experiences were middle-borns who had the same gender as all of their siblings and the birth order group of only-borns. This paper explored possible reasons for these low scores. Middle-borns with the same gender as their siblings may feel a lack of uniqueness which may reduce their perceived sense of value and self-esteem. Only-borns have fewer opportunities to interact with similarly aged peers as children and may end up modeling after their parents, causing feelings of isolation when they are forced to interact with people their own age. Struggling with low self-esteem and feelings of isolation may certainly put college students at a disadvantage during their efforts to live meaningful college experiences.

These disadvantages that create challenges in college may also increase the likelihood of a student becoming depressed. Without the social skills or the sense of value that first-borns, last-borns, and people with a unique gender status experience as a result of their birth orders, students may be at risk for depression. This can be addressed by understanding the importance of meeting the needs of children. First-borns are constantly surprising their parents who have never raised a child before. Parents must be vigilant of their first-borns in order to stay on top of the responsibilities involved in being a parent. Unexpected responsibilities will become learned skills as more children are raised, reducing the need to be so cautious and protective of their children. This could account for why others have

found that first-borns receive the most attention from their parents (Lindert, 1977). If parents were to modify their parental skills and responsibilities based on the specific needs of each child, it would ensure that each child receives individual attention and a sense of uniqueness. This would address the disadvantages that middle-borns are at, especially middle-borns with the same gender as their siblings, and could provide the child with the self-esteem and value to grow into a successful adult. If there is only one child, the child will automatically receive an individualized parenting plan, but the child may miss out on important social interactions. If the parents were to expose their child to a variety of different social situations and allow their child to learn of the benefits and challenges involved in interacting with others, the children may grow up to feel more comfortable around his/her peers.

These are examples of steps parents can take to help their children live academically and socially successful lives. However, parents may be unaware of how birth order affects their children, and they would therefore be unaware of the importance in taking steps to address their birth order. It is essential for social workers working with families to understand the effects of sibling role and gender role in order to educate parents on birth order effects. This education could help parents raise their children without putting them at a disadvantage for not having other siblings or by having siblings who are too similar to themselves. Making changes in parenting styles and making the extra effort to expose children to diverse experiences may help the children acquire the skills necessary to lead healthy personal and professional lives. These changes will not be easy for

parents to make, but with the expertise and support of social workers, the results could benefit the children which could lower rates of depression among college students.

Further research must still be done to better understand the effects of birth order on children, adolescents, and adults. It is important for intra-familial research to be done in order to control for unique influences that every family experiences such as neighborhood norms, household rules, and the experiences of parents that have affected their parenting styles. Siblings are all exposed to many of the same experiences because they all grow up in the same home, which means that it is the differences between siblings in the same home that will shed the most light on the effects of birth order. Additional research can continue to help social workers understand birth order effects on family dynamics and children, and this research will further address the problem of depression on college campuses. In the meantime, students should take advantage of the services and opportunities on college campuses to help them enjoy what could be considered to be the height of their academic and social lives.

References

- Beck, E., Burnet, K. L., & Vosper, J. (2006). Birth-order effects on facets of extraversion. *Personality and Individual Differences, 40*(5), 953-959.
- Blake, J. (1991). Number of siblings and personality. *Family Planning Perspectives, 23*(6), 272-274.
- Davey, A., Tucker, C., Fingerman, K., & Savla, J. (2009). Within-family variability in representations of past relationships with parents. *The Journals of Gerontology, 64B*(1), 125.
- Dunkel, C., Harbke, C., & Papini, D. (2009). Direct and indirect effects of birth order on personality and identity: Support for the null hypothesis. *The Journal of Genetic Psychology, 170*(2), 159.
- Eckstein, D., Sperber, M., & Miller, K. (2009). A couple's activity for understanding birth order effects: Introducing the birth order research-based questionnaire (BORQ). *Family Journal, 17*(4), 342.
- Falbo, T. (1978). Sibling tutoring and other explanations for intelligence discontinuities of only and last borns. *Journal of Population, 1*(4), pp. 349-363.
- Harris, K. A., & Morrow, K. B. (1992). Differential effects of birth order and gender on perceptions of responsibility and dominance. *Individual Psychology, 48*(1), 109.
- Herrera, N. C., Zajonc, R. B., Wiczorkowska, G., & Cichomski, B. (2003). Beliefs about birth rank and their reflection in reality. *Journal of Personality and Social Psychology, 85*(1), 142.
- Hoyer, W. J., & Roodin, P. (2009). *Adult development and aging* (6th ed.). Boston: McGraw-Hill.
- Kalkan, M. (2008). The relationship of psychological birth order to irrational relationship beliefs. *Social Behavior and Personality, 36*(4), 455.
- Kidwell, J. S. (1982). The neglected birth order: Middleborns. *Journal of Marriage and Family, 44*(1), pp. 225-235.
- Lindert, P. H. (1977). Sibling position and achievement. *The Journal of Human Resources, 12*(2), pp. 198-219.
- Lindsey, B., Fabiano, P., & Stark, C. (2009). The prevalence and correlates of depression among college students. *College Student Journal, 43*(4), 999.

- Nyman, L. (1995). The identification of birth order personality attributes. *The Journal of Psychology, 129*(1), 51.
- Rammstedt, B. & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality, 41*, 203-212.
- Rodgers, J. L., Cleveland, H. H., van, d. O., & Rowe, D. C. (2000). Resolving the debate over birth order, family size, and intelligence. *American Psychologist, 55*(6), 599-612.
- Rubin, A., & Babbie, E. R. (2010). *Essential research methods for social work* (2nd ed.). Belmont, CA: Brooks/Cole, Cengage Learning.
- Smilgis, S. (1997). Can birth order predict your personality. *EEO Bimonthly, 28*, 34.
- Srivastava, S. (2011). Study the effect of achievement motivation among birth orders. *Journal of Psychosocial Research, 6*(2), 169.
- Suloway, F. J. (1996). *Born to rebel :Birth order, family dynamics, and creative lives* (1st ed.). New York: Pantheon Books.
- Szobiová, E. (2008). Birth order, sibling constellation, creativity and personality dimensions of adolescents. *Studia Psychologia, 50*(4), 371.
- Watkins, C. E. (1992). Birth order research and adler's theory: A critical review. *Individual Psychology, 48*(3), 357.
- Wong, T. M. L., Branje, S. J. T., VanderValk, I. E., Hawk, S. T., & Meeus, W. H. J. (2010). The role of siblings in identity development in adolescence and emerging adulthood. *Journal of Adolescence, 33*(5), 673-682.
- Zajonc, R. B., Markus, H., & Markus, G. B. (1979). The birth order puzzle. *Journal of Personality and Social Psychology, 37*(8), 1325-1341.

Appendix

ANONYMOUS SURVEY

Circle the number that corresponds to how you feel about the following personal statements.

	Strongly Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Strongly Agree
1) I have a close relationship with my family	(1)	(2)	(3)	(4)	(5)
2) I have a close relationship with my high school friends	(1)	(2)	(3)	(4)	(5)
3) I have a close relationship with my college friends	(1)	(2)	(3)	(4)	(5)
4) When I do well on a test, it is usually because I am well-prepared, not because the test is easy.	(1)	(2)	(3)	(4)	(5)
5) I enjoy the challenge of learning complicated new material.	(1)	(2)	(3)	(4)	(5)
6) I dislike being among a large number of people	(1)	(2)	(3)	(4)	(5)
7) I am rarely by myself	(1)	(2)	(3)	(4)	(5)
8) I often plan or am invited to social gatherings	(1)	(2)	(3)	(4)	(5)
9) I dislike helping people who are in difficulty	(1)	(2)	(3)	(4)	(5)
10) My grades reflect my ability	(1)	(2)	(3)	(4)	(5)
11) People often come to me to be entertained	(1)	(2)	(3)	(4)	(5)
12) I frequently talk to faculty outside of class about ideas presented during class.	(1)	(2)	(3)	(4)	(5)

How well do the following statements describe your personality? Circle the number that corresponds to how you feel.

I see myself as someone who...	Strongly Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Strongly Agree
13) ...is reserved	(1)	(2)	(3)	(4)	(5)
14) ...is generally trusting	(1)	(2)	(3)	(4)	(5)
15) ...tends to be lazy	(1)	(2)	(3)	(4)	(5)
16) ...is relaxed, handles stress well	(1)	(2)	(3)	(4)	(5)
17) ...has few artistic interests	(1)	(2)	(3)	(4)	(5)
18) ...is outgoing, sociable	(1)	(2)	(3)	(4)	(5)
19) ...tends to find fault with others	(1)	(2)	(3)	(4)	(5)
20) ...does a thorough job	(1)	(2)	(3)	(4)	(5)
21) ...gets nervous easily	(1)	(2)	(3)	(4)	(5)
22) ...has an active imagination	(1)	(2)	(3)	(4)	(5)

- 23) How many siblings did you grow up with in your household? (Does not include siblings who lived elsewhere the majority of the time)
- None
 - One
 - Two
 - Three
 - More than three

- 24) If you were given the choice, what birth order would you choose? Rank the following birth orders from most desirable to least desirable.

	First Choice	Second Choice	Third Choice	Fourth Choice
First Born	?	?	?	?
Middle Born	?	?	?	?
Last Born	?	?	?	?
Only Child	?	?	?	?

- 25) Please fill in the following chart to show the birth order and genders of you and your siblings. Mark an X in the correct gender column for each sibling. The oldest, or first born, should be listed at the top. For multiple borns (twins, triplets, etc.) mark multiple X's in the correct gender columns. **CIRCLE** the X that refers to you.

Birth Order	Male	Female
1st		
2nd		
3rd		
4th		
5th		
6th		
7th		
8th		

- 26) Which statement best reflects the birth orders of your parent(s) or guardian(s)? Put an X next to each response that applies. If more than one parent/guardian has the same birth order put additional X's next to the response that applies.
- I have a parent/guardian who is a first born_____
 - I have a parent/guardian who is a middle born_____
 - I have a parent/guardian who is a last born_____
 - I have a parent/guardian who is a multiple born (twin, triplet, etc.)_____
 - I have a parent/guardian who is an only child_____
 - I do not know the birth order or my parent/guardian_____
- 27) Are you in a relationship? What is the birth order of your significant other?
- Yes. I am in a relationship with a first born.
 - Yes. I am in a relationship with a middle born.
 - Yes. I am in a relationship with a last born.
 - Yes. I am in a relationship with an only child.
 - Yes. I am in a relationship with a multiple born (twin, triplet, etc.)
 - Yes. I am unaware of the birth order of my significant other.
 - No. I am not in a relationship.

28) How old are you?

29) What is your student level?

- a. Freshman
- b. Sophomore
- c. Junior
- d. Senior
- e. Part time/Non matriculated

30) What is your area of study? List all that apply

31) What is your GPA?

- a. Below 1.0
- b. Between 1.0 and 1.99
- c. Between 2.0 and 2.49
- d. Between 2.5 and 2.99
- e. Between 3.0 and 3.49
- f. Between 3.5 and 4.0

32) Describe the culture/heritage in which you were raised. In other words, which heritage/culture influenced you? Please **check** all that apply.

US/Canada

European

Asian

Near/Middle Eastern (United Arab Nations, Pakistan, etc.)

African Descent

Far Eastern (India, Bangladesh, etc.)

Latin/Hispanic/Caribbean

Other (Please specify) _____

33) Please **circle** the heritage/culture that had the most influence on you in Question 32.

Summary of Capstone Project

Introduction

The purpose of the study of Birth Order and the Academic and Social Success of College Students was to examine the relationship between birth order and the academic and social experiences that students have during their college years. This study utilized an anonymous survey where Syracuse University students were asked to evaluate their own personalities and college experiences as well as answer demographic questions such as age, gender, order of birth in family, and the genders and order of birth for their siblings. The results of the survey were statistically analyzed to determine how birth order may affect academic and social success in college. This information was then used to discuss potential challenges facing college students and to explore how social workers could use this study about birth order to address these problems.

Identifying Important Concepts

This study broke birth order down into two components: sibling role and gender role. Sibling role was defined as the role a person assumes as an older sibling, a younger sibling, neither, or both. Sibling roles include first-borns, middle-borns, last-borns, and only-borns. Gender role was defined as the role a person assumes as a brother or sister in relation to other siblings, if any. Gender roles include those with the same gender as all of their siblings (i.e. a female with only sisters or a male with only brothers), a person with a unique gender (i.e. a female with only brothers or a male with only sisters), a person with siblings of both similar and different genders (i.e. someone with at least one brother and at

least one sister), and someone with no other siblings for their gender to be compared to (i.e. an only-born). Both sibling role and gender role were explored independently to determine if they influenced academic and social success.

The combined effect of the two components of birth order was also explored. Using both sibling and gender role to determine birth order led to the creation of ten distinct birth orders. The first three birth orders are first-borns with the same gender as their siblings, first-borns with a unique gender, and first-borns with siblings of multiple genders. The second set of birth orders include middle-borns with the same gender as their siblings, middle-borns with a unique gender, and middle-borns with siblings of multiple genders. The third set follows the same pattern and includes last-borns with the same gender as their siblings, last-borns with a unique gender, and last-borns with siblings of multiple genders. The tenth birth order is simply the category of only-borns because they have no siblings for their genders to be compared to.

This study also required me to define academic and social success. I defined academic success as the student's perceived ability to meet the academic challenges of college and their GPAs. Social success is defined in this study as the student's ability to create and maintain personal connections with the people in his/her lives. Success among academic challenges included holding a high GPA, having a high academic achievement motivation, and a self-assessment of the respondent's academic ability. Success among social challenges included maintaining close relationships with family and high school friends throughout

college, creating close friendships with college peers, having the ability to act as a good friend, and engaging in frequent social activities.

Research Methods

Using these definitions of birth order, academic success, and social success five research questions were developed to study how birth order may be related to academic and social success. The five questions are as follows:

- 6) Is sibling role related to academic success in college?
- 7) Is gender role related to academic success in college?
- 8) Is sibling role related to social success in college?
- 9) Is gender role related to social success in college?
- 10) Are people satisfied with their birth orders?

To answer these questions, a survey was conducted and its 505 responses were analyzed. This study used birth order as the independent variable and academic and social success as the dependent variables. The purpose was to understand how having a specific sibling or gender role could potentially affect academic or social success. I also wanted to understand how students perceived their own birth orders. I designed the survey using questions from previously established instruments as well as questions that I designed for the purpose of this project. To identify each respondent's sibling and gender role, students were asked to map out their sibling relationships. They identified how many older brothers/sisters they had and how many younger brothers/sisters they had. Academic success was measured quantitatively through the use of other survey questions. Personal statements were posed to respondents regarding academic

challenges and academic pursuits. Using a Likert 5-Point Scale, respondents were asked to evaluate their feelings about each statement. They were asked to choose between strongly disagree (1), disagree a little (2), neither agree nor disagree (3), agree a little (4), and strongly agree (5). An example of a statement measuring academic success is “When I do well on a test, it is usually because I am well-prepared, not because the test is easy.”

Social success was measured in a similar fashion as academic success. Personal statements were posed to respondents regarding socializing patterns and preferences. Respondents were asked to evaluate to what degree they agreed or disagreed with these statements. An example of a statement measuring social success is “I dislike helping people who are in difficulty.” Eight questions referred to social success, and the respondent’s total score became the person’s overall social success score. Several of the statements, such as the example given, had to be reverse-coded so a lower response indicated a higher social success score.

To answer the fifth research question, four questions were used to gather information on how the respondent viewed his/her own birth order. Respondents were asked to rank the four sibling orders from their first choice to their fourth choice. Respondents chose between first-born, middle-born, last-born, and only-born. This question was asked before the respondent was asked to identify his/her own birth order as a way to secure an honest preference.

This survey was taken by 505 Syracuse University undergraduate students. I contacted Syracuse University professors of large lectures and received

permission from several to distribute the survey in class or email the survey to be completed and emailed back. There were 103 hard-copies of the survey that were personally handed to willing respondents, and 30 that were answered on a Microsoft Word document and emailed to me. After two weeks in this phase of the research project, I created an online version of the survey through SurveyMonkey. The link to this survey was distributed to many more professors, as well as large student groups such as the Renée Crowne University Honors Program and the Advocacy Center Volunteers. The surveys were completely anonymous and students were able to choose if they wanted to participate.

Before any data analysis could be done, the responses had to be coded. The personal statements using the Likert Scale already had numerical values that could be used in further calculations, but some had to be reverse-coded. After this was done, I calculated the total score for academic success and social success for each respondent. Higher numbers indicated higher amounts of these traits. Using the siblingship map from the survey, I was able to assign each respondent a sibling and gender role. Each of these roles was assigned a number. The four questions asking respondents to rank each sibling role were fairly simple to code because each sibling role was ranked as either the first, second, third, or fourth preference of each respondent. The numbers 1-4 were used in coding each of these questions.

After all of the coding and reverse-coding was complete, the program SPSS was used to determine the relationships between the independent and dependent variables and to answer the research questions. I calculated the

average academic and social success scores for each of the four sibling roles and each of the four gender roles. I also calculated the average academic and social success score for each of the ten birth orders. I compared these mean scores to explore which birth order were associated with higher or lower scores in academic and social success. I also calculated the degree of correlation between the independent variable and the dependent variables. A correlational study examines the extent to which differences in one characteristic or variable are related to differences in other characteristics or variables.

Data Analysis

As I answered and discussed the research questions based on my data analysis of the survey responses, I addressed the importance of understanding which birth orders are associated with lower rates of academic and social success and which birth orders are less likely to enjoy their sibling role. An ideal college experience involves students being actively engaged in what they are learning and having positive social interactions and support networks. Unfortunately, the college experiences of many students fall short of these expectations and they struggle to continue their pursuit of higher education. Academic and social challenges may lead to or be caused by depression. Depression has become a serious concern on college campuses. Understanding the birth orders that may create challenges in achieving academic or social success could reduce the number of college students having negative college experiences. My research found that students who were only-borns as well as students who were middle-borns with the same gender as all of their siblings had the lowest rates of

academic and social success, and were the least likely to rank their sibling order as the best.

Conclusion

This research is especially significant to social workers, who often work with families in an attempt to facilitate an interactive unit of mutual support to meet the needs of every family member. It is essential for any social worker working with a family to understand the family and sibling dynamics.

Knowledge and understanding of birth order and its effects may help social workers address unmet needs or disadvantages that children may be experiencing as a result of their sibling and gender roles. Having a better understanding of the relationship between birth order and academic and social success can help social workers address unmet needs of children in order to give them the tools to enjoy positive college experiences.