

Intellectual and Interpersonal Competence Between Siblings: The College Years

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Abstract

College and university administrators are interested in the development of their students. Developmental theorists, such as Chickering (1969), provide a lens through which to view developmental task, and issues facing those tasks. One influence on development is friendship and student communities including siblings. This study expanded the available knowledge based on siblings in general, and addresses gaps in the literature by looking at sense of competence among siblings in college.

The purpose of this study is to explore the sense of competence between older and younger siblings who were both college students at the same institution during an overlapping period of time. As defined by Arthur W. Chickering (1969), sense of competence is a feeling of self-confidence about one's interpersonal and intellectual skills.

The intellectual and interpersonal competence of students were evaluated through the Sense of Competence Scale (SCS) (Janosik, Creamer & Cross, 1987). The SCS consists of 20 questions that focus on the interpersonal or interpersonal skills of the respondents. Ten items from the SCS are assigned to the interpersonal competence subscale, and 10 items from the SCS are assigned to the intellectual competence subscale. I created a web-based version of the SCS to collect data from college students who had a sibling at the same college with them simultaneously. The population for this study consists of participants who are one of at least two non-twin siblings who are enrolled at the same institution of higher education at the time of data collection. Data was collected from three institutions located in the southwest region of the Commonwealth of Virginia.

The research found no statistically significant differences in the intellectual and interpersonal competency between older and younger siblings. Although the study examined a limited number of siblings, the results did not contradict the current research on sibling relationships, which suggests that older siblings demonstrate higher intellectual competence and younger siblings demonstrate higher interpersonal competence.

Table of Contents

Chapter One- Introduction.....	1
Purpose of Study.....	3
Research Questions.....	3
Significance of Study.....	4
Limitations.....	4
Organization of the Study.....	5
Chapter Two- Literature Review.....	6
Student Development.....	6
Sense of Competence.....	6
Sibling Relationships.....	8
The Gender of the Siblings.....	9
Spacing Between Children.....	10
Dealing with children differently.....	10
Birth Position.....	11
The Oldest Child.....	12
The Second Child	12
The Middle Child.....	13
The Youngest Child.....	13
Chapter Three-Methodology.....	14
Sample Selection.....	15
Instrumentation.....	15
Reliability and Validity.....	16

Data Collection.....	17
Data Analysis.....	17
Chapter Four- Results.....	20
The Respondent Group.....	20
Intellectual Competence.....	20
Interpersonal Competence.....	31
Summary.....	39
Chapter Five-Discussion, Recommendations for Future Research and Conclusion..	43
Discussion.....	43
Intellectual Competence.....	43
Interpersonal Competence.....	44
Limitations and Recommendations.....	46

Dedication

I dedicate this thesis to all the amazing individuals that have made this journey all the richer. To Steve Janosik, my committee chair, who spent endless hours and a “small rainforest” of paper to help me construct and compile this study. To Don Creamer, a committee member, whose dedication to field of higher education is inspiration to make a difference. To Gerry Kowalski, a committee member, who truly encompasses a genuine desire to make a difference in lives of students. Thank you each for your continued support.

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List of Tables

Table 1: Characteristics of Respondent Group..... 21

Table 2: Mean Item Scores and Standard Deviation by Siblings Status
(Older vs. Younger)..... 22

Table 3: ANOVA Results for Intellectual Scale Items by Sibling Status
(Older vs. Younger)..... 24

Table 4: Mean Intellectual Scores and Standard Deviation for All Respondents
and Gender by Item..... 27

Table 5: ANOVA Results for Intellectual Scale Items by Gender
(Male vs. Female)..... 28

Table 6: Mean Interpersonal Scores and Standard Deviation by Sibling Status
(Older vs. Younger)..... 32

Table 7: ANOVA Results for Interpersonal Scale Items by Siblings Status
(Older vs. Younger)..... 33

Table 8: ANOVA Results for Interpersonal Scale Items by Gender
(Male vs. Female)..... 36

Table 9: Mean Interpersonal Scores and Standard Deviation for All Respondents
and Gender by Item..... 40

Table 10: Matched Pair Analysis of Sibling Pairs by Individual Scale Scores (Older vs.
Younger)..... 41

List of Appendices

Appendix A: Sense of Competence Scale (SCS)..... 52

Appendix B: Email to Participants..... 55

Chapter One

Introduction

In 1990, Rodgers defined *student development* as “the ways that a student grows, progresses, or increases his or her developmental capabilities as a result of enrollment in an institutional of higher education” (p. 27). He went further to define the role of student affairs practitioners to have “concern for the development of the whole person” (Rodgers, 1990, p. 27). The growth and development of students is a central goal of higher education (Evans et al., 1998). Thus, the knowledge of student development theories enables practitioners to identify and address student needs. They can then develop programs and policies that create a healthy college environment that encourages and facilitates positive growth.

Rodgers (1990) noted that the expression *student development* has been used to categorize theories associated with late adolescence and adult development in the context of higher education. These theories are divided into four categories: (a) Psychosocial Theories; (b) Cognitive Theories; (c) Typological Theories; and, (d) Person-Environment Theories (Chickering, 1969; Chickering & Reisser, 1993; Evans et al., 1998).

Psychosocial theories examine individual and interpersonal development (Evans et al, 1998). Erikson (1959/1980) described psychosocial development as a series of developmental tasks or stages. Adults encounter these tasks when their biology and psychology converge. The tasks qualitatively alter thinking, feeling, behaving, valuing, and relation to others as well as ones self (Chickering et al., 1993).

One of the most widely cited psychological theorists is Arthur W. Chickering (1969/1993) (Evans et al., 1998). Chickering, in his landmark book, *Education and Identity* (1969), outlined a theory based on his research conducted at Goddard College between 1959 and

1965. His theory of student development provided an overview of developmental issues faced by college students. Chickering (1969/1993) went further to investigate the influences of the environmental conditions on one's development.

Chickering (1969/1993) proposed that educational environments influence student development. Working with Reisser in 1993, Chickering argued that there are several key factors that influence development. One of those influences cited by Chickering and Reisser was friendship and student communities.

Pascarella and Terenzini (1991) referred to these factors as "socializing agents." Siblings are one group of "socializing agents" that have been researched. However, most research is focused on the intellectual and interpersonal competences among children and adolescents (Beecher & Fischer, 1999; Bostrom & Prather, 1991; Cherry, 1990; Cohen, 1985; Kahn, 1997; Leman, 1998; Lemire, 2001; Ogletree, 1980; Steeleman & Powell, 1985; Vurdien, 1992; Zajone & Bargh, 1980).

In summary, colleges and university administrators are interested in the development of their students (Chickering, 1969; Chickering & Reisser, 1993; Pascarella & Terenzini, 1991). Developmental theorists, such as Chickering, provide a lens through which to view developmental tasks and issues facing those tasks (Bostrom & Prather, 1991; Myers, Smith & Sonnier, 1998; Vurdien, 1992). One influence on development is friendship and student communities including siblings. There have been numerous studies investigating the influence on one's development primarily during childhood and adolescents (Beecher & Fischer, 1999; Bostrom & Prather, 1991; Cherry, 1990; Cohen, 1985; Kahn, 1997; Leman, 1998; Lemire, 2001; Ogletree, 1980; Steeleman & Powell, 1985; Vurdien, 1992; Zajone & Bargh, 1980). Yet, there is limited research that investigates the influence of siblings on one's development. Data on

intellectual and interpersonal competence among siblings in college expanded the available knowledge base about siblings in general. The present study addresses this gap in the literature by examining college siblings' sense of competence.

Purpose of the Study

The purpose of this study is to explore sense of competence between older and younger siblings who were both college students at the same institution during an overlapping period of time. For the purposes of this study, sense of competence is defined as a feeling of self-confidence about one's interpersonal and intellectual skills (Chickering, 1969).

Students' confidence about these skills will be evaluated through the Sense of Competence Scale (SCS) (Janosik, Creamer & Cross, 1987) (Appendix A). The SCS consists of 20 questions that focus on the interpersonal or intellectual skills of the respondent. Ten items from the SCS are assigned to the interpersonal competence subscale, and 10 items are assigned to the intellectual competence subscale. I created a web-based version of the SCS to collect data from college students who had a sibling in college with them simultaneously.

Research Questions

1. What are the levels of intellectual competence among older siblings?
2. What are the levels of intellectual competence among younger siblings?
3. Are there differences in the levels of intellectual competences between older and younger siblings?
4. What are the levels of interpersonal competence among older siblings?
5. What are the levels of interpersonal competence among younger siblings?
6. Are there differences in the levels interpersonal competences between older and younger siblings?

Significance of the Study

This study may contribute to the body of knowledge surrounding student development theory specifically Chickering's Sense of Competence. This study examined the sense of competence between older and younger siblings during college. Therefore, this study focused on the literature surrounding the Chickering's Theory of Student Development.

This study may have significance for future research. For example, this study explored the relationship of sense of competence between older and younger siblings during college. Future studies might examine the differences in the sense of competence between male and female siblings. Such a study would expand on the information about the sense of competence among siblings in college.

This study examined older and younger siblings during college. Future research may review the differences in the interpersonal and intellectual competence of first-born children and only-children. Future studies such as this would expand on the information about the sense of competence among different types of students in college.

This study explored the relationship between older and younger siblings during college. Examining the levels of competence between the oldest-child and youngest-child of a family may be worth investigating. This expanded research could assess the student interpersonal and intellectual competency based on specific birth order.

Limitations

As with all research, this study has some initial limitations. Sample size is a limitation. For example, I limited my sample based on time and location constraints. These constraints affect my ability to select at random participants for my study.

The second limitation of this study relates to the research techniques. The use of surveys always poses some challenges. For example, study participants may interpret items differently, not understand some items, or feel limited by the response options on the survey. All these possibilities may influence the survey results.

A web-based survey also posed limitations. A web-based survey may not be accessible to all students eligible for participation in this study. This may influence the results by limiting the number of responses to the survey.

Despite these limitations, however, this is a worthwhile study to conduct. It will provide some baseline data about the academic and social competence of siblings in college and lay the groundwork for future studies about the sibling relationship.

Organization of the Study

This study is presented in five chapters. Chapter one introduces the topic of the study, the research questions and the significance of the study. The second chapter reviews the literature relevant to the study. Chapter three describes the methodology of the study, including the sampling techniques and the procedures used to collect and analyze the data. The fourth chapter describes the results of the study. The final chapter discusses those results and their implications for future practice, research and policy based.

Chapter Two

Literature Review

Student Development

Building on Erikson's (1959/1980) discussion of identity and intimacy, Chickering saw the establishment of identity as the primary developmental issue with which students struggle during the college years (Evans et al., 1998). Like Erikson, Chickering (1969/1980) recognized the stabilization of identity as the core task for adolescents and young adults, and synthesized data about the development of college students into a general framework that could be applied to educational practices (Chickering, 1969; Chickering et al., 1993).

Chickering (1969) proposed seven vectors of development. Each vector contributes to the formation of identity. Chickering (1969) used the term *vectors of development* because "each seemed to have a direction and magnitude---even though the direction may be expressed more appropriately by a spiral or by steps than a straight line" (p. 8). The seven sectors serve as a map to help us determine where students are and where they are heading (Chickering et al., 1993). Students move through vectors at different rates and can interact with movement along others. Chickering and Reisser (1993) noted that movement through each vector "brings more awareness, skill, confidence, complexity, stability, and integration" (p. 34). Proceeding through the vectors is assumed to be positive because by gaining the skills and strengths associated with each vector "individuals grow in versatility, strength, and ability to adapt when unexpected barriers or pitfalls appear" (Chickering et al., 1993, p.35).

Sense of Competence

Chickering and Reisser (1993) conceptualized competence as a three-pronged pitchfork, the prongs being intellectual competence, physical and manual skills, and interpersonal

competence. But, no work can be done without the handle being “a sense of confidence that one can cope with what comes and achieve goals successfully” (Chickering et al., 1993, p.53).

Chickering and Reisser (1993) stated, “intellectual competence involves using the mind’s skills to comprehend, reflect, analyze, synthesize, and interpret” (p. 53). Intellectual competence involves acquiring knowledge and skills associated with a specific subject matter (Evans et al., 1998).

Interpersonal competence, as defined by Chickering and Reisser (1993), includes skills of communication, leadership, and working effectively with others. Interpersonal competence is a complex collection of sub-skills. These skills include a broad range of skills such as “listening, asking questions, self disclosure, giving feedback, and participating in dialogues that bring insight and enjoyment” (Chickering et al., 1993, p. 72,). The development of interpersonal competences is a prerequisite for building successful relationships (Chickering et al., 1993). These competences are essential for career and family, and help to develop citizens.

Chickering’s third prong to developing a sense of competence is physical and manual competence. This competency involves the use of one’s body as “a healthy vehicle for high performance, self-expression and creativity” (p. 54, Evans et al., 1998). One can develop this competence through athletic and recreational activities, an awareness of health and involvement in artistic and manual activities.

Despite the importance of this third prong, this study focused on interpersonal and intellectual competences among siblings. For the purposes of this study, I collected data surrounding the participants’ interpersonal and intellectual competencies.

Sibling Relationships

Chickering argued that educational environments exert powerful influence over the development of students. In 1993, Reisser and Chickering proposed seven key factors of influence. One of the factors proposed is friendship and student communities. The meaningful relationships in which shared interest and significant interactions exist encourage development. These communities can be informal in nature, such as a circle of friends, or more formal, for instance a student organization.

Pascarella and Terenzini (1991) emphasized the importance of “socializing agents” (p. 190). They suggest these agents are the people with whom students interact. These “socializing agents” play a critical role in the development of individuals during college. Adams and Fitch (1983) reported that the people, including faculty and peers, with whom students interact play an important role in the changes in the development of competence during the college years. Pascarella and Terenzini (1991) noted that several studies suggest that influences of students’ peers may be stronger than those to their faculty members.

Aided by the work of Lacy (1978), Pace (1979) and Weidman (1984), Pascarella (1980) suggest that growth is a function of the direct and indirect effects of five major sets of variables. Two sets of those variables, students’ background and pre-college characteristics, and structural and organizational features of the institution (for example, size, selectivity, residential character) structure the third variable set, the institutional environment. These three variables then influence the fourth set of variables, the frequency and content of students’ interactions with the major socializing agents on campus including faculty and peers. The first four sets influence the fifth cluster, the quality of effort.

Weidman (1989) hypothesized that students carry a set of important orienting background characteristics as well as normative pressures originating from both parents and other non-college reference groups. These characteristics and shaping forces influence and constrain a student's choices within the college's structural and organizational settings. Unlike Pascarella, Weidman also hypothesized important non-college influences on students.

One group of "socializing agents" that has been researched is siblings. There have been multiple studies on the influence of siblings on one's development (Cherry, 1990; Lemire, 2001; Ogletree, 1980; Pfouts, 1980; Steeleman & Powell, 1985).

There have been many research studies pertaining to the relationships between siblings (Lamb & Sutton-Smith, 1982). These studies can be grouped into four categories: (a) gender of the siblings; (b) the differences between spacing between children; (c) how parents deal with different children; and, (d) birth position (Lemire, 2001).

Gender of the Siblings

A series of studies by Koch between 1954 and 1960 were the first to demonstrate the many differences between first-borns and non first-borns, which are actually the result of more specific patterns of sibling status (Lamb & Sutton-Smith, 1982). In general, Koch found that each sibling heightened his or her own characteristics, such as preferences, interests and abilities, in the other sibling. The older sibling had a stronger impact on the younger ones than visa versa, and boys had a stronger effect on girls. These effects seem to have been of a more obviously modeled kind in the case of the same-sex siblings, and even more complex, sometimes counter-intuitive kind in the opposite-sex siblings (Lamb & Sutton-Smith, 1982).

Spacing between children

If there is a small gap between the oldest and second children, the displacement from “only-child” status can be a shocking experience (Lemire, 2001). Ogletree (1980) observed that the high academic achievement of first-borns could be offset by a large enough age gap. Meaning, the greater the age gap between siblings the less likely the birth order of a sibling impacts their academic achievement.

Dealing with children differently

Human beings react differently to the same situations. No two children born into the same family structure grow up in the identical situation. There is always a variation in the resources allocated to each sibling including time, personal interest, and relationship with parents. The family environment changes with the birth of each new child. These environments may be different for several reasons.

First, with the birth of each child, the situation changes (Lemire, 2001). These changes can include family relationships and schedules. The situational changes can be major or minor, but regardless of their size they still have an impact environment of a child.

Second, parents are older and more experienced. Parents gain knowledge and experience with age. These experiences can create different outcomes for different children.

Third, parents become more prosperous and may own a home. Families often become more prosperous with age (Lemire, 2001). This financial affluence can reflect the environment and resources that family’s experience.

Fourth, parents may have moved to another neighborhood. Again, the environment of the family has changed. These changes provide each child with unique experiences of lifestyle and personal experiences.

With growing divorce rates, and an increasing number of non-marital births and children being reared in one parent families there is a increasing likelihood that families will experience divorce, step-parenting, and family blending (Teachman, Tedrow & Crowder, 2000). These experiences alter each child's relationships with their parents as well as siblings.

Finally, the tragedies within the family structure can provide environmental changes that impact the family structure and relationships. Especially the death of a parent or sibling can cause extreme changes in the environment of a family.

Lemire (2001) stated that in the life span of every child there is the imprint of their position in the family with its definite characteristics. The child's place in the family constellation directs their future attitude towards life (Lemire, 2001).

Birth position

Opportunities, barriers, challenges and expectations are strongly influenced by a sibling's position in the birth order of a family (Lemire, 2001). The greatest concern is the impact of the family structure upon the personality of the child. Experiences in the family are the most important determinants for the framework of a child's reference for perceptions, interpretations, and evaluations of their world (Leman, 1998; Lemire, 2001; Pfouts, 1980). Thus, these habits and skills that are acquired in the home largely determine the individual's capacity for dealing with the outside world.

There is a basic assumption that personality and character traits are expressions of movement in a family structure (Lemire, 2001). The child influences the group and other members of the family as much as they influence the child. Thus, each child seeks to find a feeling of belonging to establish security.

The Oldest Child. The first part of an oldest child's life is experienced as an "only child" (Lemire, 2001). This time provides the first-born with the opportunity to have the parents' full child-directed attention. The birth of a second child "dethrones" or displaces, the first child. The oldest child seeks to regain that lost attention.

Several studies connect the success of first-borns to the desire to seek more attention (Lemire, 2001; Ogletree, 1980; Pfouts, 1980; Steeleman & Powell, 1985). Cherry's (1990) literature review revealed that first-borns: (a) have higher GPAs, (b) make up a larger portion of the college population; and, (c) score higher on the verbal portions of SAT. Other authors, such as Pfouts (1980), Vurdien (1992), and Bostrom and Prather (1991), noted that first-borns demonstrate higher academic achievement than later-borns.

On the grounds of reputation rather than intelligence, there has been a greater consensus on first-born superiority (Lamb & Sutton-Smith, 1982). Their overrepresentation among first-borns with accolades, such as distinguished persons, national merit scholars and Ph Ds, point to this conclusion. Furthermore, this reputation has also been guided by an overrepresentation amongst college students. In turn, first-borns are at college in the first place because of their higher academic aspirations and achievement. They have shown to fail at school to a lesser extent than later-born children (Lamb & Sutton-Smith, 1982).

The Second Child. Opposing personality traits often develop in first and second children (Lemire, 2001). The second-born often identifies the first-born as the pacesetter and seeks to catch or replace that child. Second children are often more flexible than first-borns. The parents of first-borns are more anxious, more overprotective, and more indulgent. By the second child, the parents have gained experience based on the first-child (Lemire, 2001).

The Middle Child. The third child places more pressure on the second-child for success. Now, the middle child must compete with the oldest and the youngest for attention (Lemire, 2001). Middle children often find themselves shifting between being capable and regressing. The comparison between oldest and youngest child makes it difficult for middle children to find a true identity, thus a sense of security (Lemire, 2001).

The Youngest Child. This child can never be displaced. The youngest child has older siblings filling the positions of role models and parenting, thus the dynamic of the parents' role changes. The youngest child experiences the guidance of seasoned parents (Lemire, 2001).

In conclusion, student development theory is extensively used in student affairs practice to facilitate student development. One such theory is Chickering's (1969/1993) Theory of Identity Development. Sense of Competence is one of seven vectors that frame the psychological development of individuals during the college years. Environmental agents, such as siblings, can influence an individual's development. There is research on the academic and social success of children and adolescent siblings (Cherry, 1990; Lemire, 2001; Ogletree, 1980; Pfouts, 1980; Steeleman & Powell, 1985). The few studies about young adult siblings have only evaluated components related to academic success (Bostrom & Prather, 1991; Cohen, 1985; Vurdien, 1992). Thus, there is a need for research on the social and academic success of siblings in college. This study seeks to fill that gap in literature.

Chapter Three

Methodology

The purpose of this study was to explore sense of competence between older and younger siblings who were both college students at the same institution during an overlapping period of time. For the purposes of this study, academic and social confidence is defined by one's sense of competence. As defined by Arthur Chickering (1969), sense of competence is a feeling of self-confidence about one's interpersonal and intellectual skills.

The academic and social confidence of students will be evaluated through the Sense of Competence Scale (SCS) developed by Janosik, Creamer, and Cross (1987) (Appendix A). The SCS consists of 20 questions that focus on the interpersonal or intellectual skills of the respondent. Ten items from the SCS are assigned to the interpersonal competence subscale, and 10 items are assigned to the intellectual competence subscale. I created a web-based version of the SCS with permission from the author to collect data from college students who had a sibling in college with them simultaneously.

The following research questions were answered using the data gathered from the on-line questionnaire:

1. What are the levels of intellectual competence among older siblings?
2. What are the levels of intellectual competence among younger siblings?
3. Are there differences in the levels of intellectual competences between older and younger siblings?
4. What are the levels of interpersonal competence among older siblings?
5. What are the levels of interpersonal competence among younger siblings?

6. Are there differences in the levels interpersonal competences between older and younger siblings?

Sample Selection

The population for this study consisted of participants who were one of at least two non-twin siblings who were enrolled at the same institution of higher education at the time data were collected. The siblings needed to attend the same campus to control for differences between campuses. Participants came from three institutions. All institutions were located in southwest region of the Commonwealth of Virginia. The institutions varied greatly in size. The enrollment ranged from under 1,000 students to 26,000 students. The institutions were selected based their proximity to the researcher's location.

I hoped to identify 25 older siblings and 25 younger sibling participants for the study. Anticipating a 50% response rate, I hoped to contact about 50 older siblings and 50 younger siblings.

To identify qualified siblings, I contacted staff members in enrollment services of the selected institutions. The staff member provided a roster of currently enrolled siblings including electronic mail (e-mail) addresses for each student. The survey was e-mailed to all siblings who had valid e-mail address based on the roster provided by enrollment services.

Instrumentation

Sense of competence, as defined by Chickering (1969), is a feeling of self-confidence about one's interpersonal and intellectual skills. This is the first type of competency among seven developmental tasks for college students. The SCS developed by Steve Janosik and others is designed to elicit data about the one's interpersonal and intellectual competences (Janosik, Creamer & Cross, 1987).

The SCS contains 20 items to measure the degree to which these competences have been achieved (Janosik, Creamer & Cross, 1987). The items on the SCS focus on the interpersonal or intellectual skills of the respondents. Ten items are assigned to the interpersonal competence subscale and 10 items are assigned to the intellectual competence subscale (Janosik, Creamer & Cross, 1987).

Using a factor analysis, Janosik and his colleagues found that the 20 items on the SCS were factorially pure. Ten items arrange into a major underlying construct labeled “interpersonal competence.” The remaining 10 items load onto a second construct that was labeled “intellectual competence.”

In addition to the SCS, I added a demographics data section such as birth order (older and younger) and peer relations. This section included questions concerning gender, number of close friends, and number of acquaintances.

Reliability and Validity

Reliability of a survey instrument relates to the extent to which the instrument extracts consistent and accurate responses (Suskie, 1996). Using the Cronbach’s Alpha model, the reliability coefficient for the SCS was calculated at .78 (Janosik, Creamer & Cross, 1987). The reliability coefficient for the 10-item intellectual competence subscale was .76. The reliability coefficient for the 10-item interpersonal subscale was .79. The mean of the inter-item correlation was .14 and the correlation between the two subscales (intellectual and interpersonal) was .11. These results are interpreted to mean that the scale is acceptably reliable and each subscale connects to the distinctive component of the respondent’s sense of competence as defined by Chickering (1969). Janosik, Creamer, and Cross (1987) obtained these results from pilot test results involving 100 undergraduate students attending a large public university.

Validity refers to the truthfulness of the data created by an instrument to ensure that it measures what it was intended to measure (Pyrzczak, 2001). One method of testing validity is to have experts review an instrument prior to its dispensation. Experts reviewed the SCS for clarity of items and relatedness of those items to the study. A reasonable effort was made to ensure the SCS's content validity.

Data Collection Procedures

Approval from the Institutional Review Board (IRB) was obtained. The survey was administered on-line using a survey service provided by the university with which the researcher was affiliated. The survey was posted on-line, and checked to ensure that all links were fully functioning.

An introductory message was e-mailed to all participants who had a valid e-mail address. The e-mail contained a cover letter (Appendix B). The message explained the purpose of the study and assured participants of the confidentiality of their responses. It also provided the URL at which participants can access the questionnaire. I provided contact information in case the respondents had further questions about the study.

The questionnaire provided respondents the opportunity to enter themselves into a drawing. To contact the winners, the last question on the survey gave respondents the opportunity to submit an assigned number for contact should they win one of three \$50 prizes as well as for matched pair analysis.

Data Analysis Procedures

The survey responses were organized into a SPSS spreadsheet for data analysis. The responses were coded 1 for older siblings and 2 for younger siblings. Fifteen of the 20 items on the SCS were scored by assigning a value of 4 to strongly agree, 3 to agree, 2 to disagree, and 1

to strongly disagree. Five items (R) were scored in the reverse order. The interpersonal subscale included items 1, 4, 6, 10, 12, 15, 16, 17, 18, and 19. The intellectual subscale included items 2, 3, 5(R), 7(R), 8, 9(R), 11, 13(R), 14(R), and 20. Items to which participants do not respond were be coded as 0 and counted as missing data.

The remaining analyses were designed to address the research questions posed in the study. The first research question examined the levels of intellectual competence among older siblings. I examined all the responses from older siblings and calculate a summed score for the intellectual competence subscale on the SCS. Descriptive statistics were used to address research question number 1.

The second research question evaluated the levels of intellectual competence among younger siblings. I examined all the responses from younger siblings and calculated a summed score for the intellectual competence subscale of the SCS. Descriptive statistics were used to address research question 2.

The next research question sought to determine the difference in the levels of intellectual competence between older and younger siblings. I compared the two subscale scores for each group. One-Way ANOVA (*F* test) were conducted to determine if a significant relationship between the means existed ($p < .05$).

The fourth question investigated the level of interpersonal competence among older siblings. I examined all the responses from older siblings and calculate a summed score for the interpersonal competence subscale on the SCS. Descriptive statistics were used to address research question 4.

The level of interpersonal competence among younger siblings will be investigated in the fifth research question. I will examine all the responses from younger siblings and calculate a

summed score for the interpersonal competence subscale on the SCS. Descriptive statistics was used to address research question 5.

Finally, I sought to identify any significant difference between the interpersonal competence of older and younger siblings. I compared the two subscale scores for each group. One-way ANOVA were conducted to determine if a significant relationship between the means existed ($p < .05$).

In summary, the present study was designed to answer questions regarding the intellectual and interpersonal competence among older and younger siblings. The methods described in this section are considered sufficient to respond to the six research questions posed in this study.

Chapter Four

Results

The purpose of this chapter is to report the findings of the present study. This chapter summarizes the data analysis of each variable table and answers the six research questions.

The Respondent Group

During one month of data collection a total of 32 siblings completed the SCS for this research project. The response rate for the data collection was 47%. The last six questions collected demographic information from the respondents. A total of 59% of respondents were male while 41% of respondents were female. Fifty-six percent of respondents attended college with a male sibling, and 44% of respondents reported attending college with a female sibling. Fifty-percent of respondents were identified as the older sibling, and 50% were younger. All participants met the selection criteria and were retained for data analysis. These results can be seen in Table 1. The reliability coefficient for the SCS based on the sibling respondent group was .87. A coefficient of this magnitude allows for comparison internal between two groups.

Intellectual Competence

The first two research questions asked what are the levels of intellectual competence of older and younger siblings. The means and standard deviation for all SCS items were calculated and are presented in Table 2. The older sibling respondents had the highest total mean score ($M = 29.88$) with a standard deviation of 4.63. The older siblings scored higher on 4 of 10 items. Those items were: I read fast enough to handle assignments at college; I will need tutoring in a specific course; I will achieve my academic goals; and I am afraid of making mistakes.

Table 1

Characteristics of the Respondent Group

Characteristic	Number	Percentage
<i>Gender</i>		
Male	19	59
Female	13	41
Total	32	100
<i>Gender of Respondent's Sibling</i>		
Male	18	56
Female	14	44
Total	32	100
<i>Sibling Order</i>		
Older	16	50
Younger	16	50
Total	32	100
<i>Attended college with one or more sibling</i>		
Yes	32	100
No	0	0
Total	32	100

Table 2

Mean Item Scores and Standard Deviation by Sibling Status (Older vs. Younger)

Item	Older		Younger	
	Mean	SD	Mean	SD
<i>Intellectual</i>				
I read fast enough to handle assignments at college.	3.31	0.63	3.11	0.46
I have little difficulty with college level work.	3.00	0.58	3.00	0.57
I will need tutoring in a specific course.	2.69	0.48	2.63	0.76
I feel swamped with academic work.	2.08	0.64	2.42	0.84
I will graduate with honors.	2.54	0.66	2.79	0.85
I will fail at least one college course.	3.00	0.91	3.00	0.82
I will achieve my academic goals.	3.69	0.48	3.53	0.51
Professors underrate my ability.	2.85	0.69	3.11	0.94
I am afraid of making mistakes.	2.54	0.78	2.47	0.90
I rate my intellectual ability as high.	3.15	0.38	3.32	0.48
Total	29.88	4.63	28.13	3.58

The younger siblings scored higher on 4 of 10 items. Those items were: I feel swamped with academic work; I will graduate with honors; Professors underrate my ability; and I rate my intellectual ability as high.

The third research question asked are there differences in the levels of intellectual competences between older and younger siblings. Table 2 shows the mean and standard deviation for the intellectual responses between older and younger siblings. The older sibling respondents had the highest total mean score ($M = 29.88$) with a standard deviation of 4.63. The older and younger siblings had the same mean score for two intellectual items. Those items were: I have little difficulty with college level work, and I will fail at least one college course.

Table 3 shows the results of one-way ANOVA test comparing the intellectual scale responses between older and younger respondents. The ANOVA results found one significant difference ($p = .03$) between older and younger sibling responses to the item, "I will need tutoring in a specific course."

Given the lack of significant findings, an analysis by gender was completed. Table 4 shows the mean and standard deviation for the intellectual responses between male and female respondents. The male respondents had the highest total mean score ($M = 29.37$) with a standard deviation of 4.63. The male respondents scored higher on 3 of 10 intellectual scale items. Those items were: I feel swamped with academic work; Professors underrated my ability; and I rate my intellectual ability as high. The female respondents scored higher on 7 of 10 intellectual scale items. Those items were: I read fast enough to handle assignments in college; I have little difficulty with college level work; I will need tutoring in a specific course; I will graduate with honors; I will fail at least one college course; I will achieve my academic goals; and I am afraid of making mistakes.

Table 3

ANOVA Results for Intellectual Scale Items by Sibling Status (Older vs. Younger)

Item		<i>df</i>	Sum of Squares	Sig
I read fast enough to handle assignments at college.				
	<i>Between Groups</i>	1	0.50	0.43
	<i>Within Groups</i>	30	8.37	
	<i>Total</i>	31	8.88	
I have little difficulty with college level work.				
	<i>Between Groups</i>	1	0.13	0.86
	<i>Within Groups</i>	30	11.87	
	<i>Total</i>	31	12.00	
I will need tutoring in a specific course.				
	<i>Between Groups</i>	1	2.95	0.03*
	<i>Within Groups</i>	30	10.27	
	<i>Total</i>	31	13.22	
I feel swamped with academic work.				
	<i>Between Groups</i>	1	0.54	0.65
	<i>Within Groups</i>	30	17.93	
	<i>Total</i>	31	18.47	

Table 3 (con't)

ANOVA Results for Intellectual Scale Items by Sibling Status (Older vs. Younger)

Item		<i>df</i>	Sum of Squares	Sig
I will graduate with honors.				
	<i>Between Groups</i>	1	0.28	0.81
	<i>Within Groups</i>	30	18.60	
	<i>Total</i>	31	18.88	
I will fail at least one college course.				
	<i>Between Groups</i>	1	1.16	0.46
	<i>Within Groups</i>	30	20.84	
	<i>Total</i>	31	22.00	
I will achieve my academic goals.				
	<i>Between Groups</i>	1	0.55	0.34
	<i>Within Groups</i>	30	7.17	
	<i>Total</i>	31	7.72	
Professors underestimate my ability.				
	<i>Between Groups</i>	1	1.06	0.49
	<i>Within Groups</i>	30	20.94	
	<i>Total</i>	31	22.00	
I am afraid of making mistakes.				
	<i>Between Groups</i>	1	2.40	0.19
	<i>Within Groups</i>	30	19.60	
	<i>Total</i>	31	22.00	

Table 3 (con't)

ANOVA Results for Intellectual Scale Items by Sibling Status (Older vs. Younger)

Item		Sum of <i>df</i>	Squares	Sig
I rate my intellectual skills as high.				
	<i>Between Groups</i>	1	6.67E-02	0.85
	Within Groups	30	5.93	
	Total	31	6.00	

*p < .05

Table 4

Mean Intellectual Scores and Standard Deviation for All Respondents and Gender by Item

Item	All		Male		Female	
	Mean	SD	Mean	SD	Mean	SD
I read fast enough to handle assignments at college.	3.19	0.49	3.07	0.46	3.31	0.60
I have little difficulty with college level work.	3.00	0.62	2.93	0.59	3.06	0.68
I will need tutoring in a specific course.	2.66	0.65	2.33	0.62	2.94	0.57
I feel swamped with academic work.	2.28	0.77	2.27	0.70	2.25	0.86
I will graduate with honors.	2.69	0.78	2.60	0.74	2.75	0.86
I will fail at least one college course.	3.00	0.84	2.80	0.86	3.19	0.83
I will achieve my academic goals.	3.59	0.50	3.47	0.52	3.69	0.48
Professors underrate my ability.	3.00	0.84	3.00	0.76	2.94	0.93
I am afraid of making mistakes.	2.50	0.84	2.40	0.91	2.50	0.73
I rate my intellectual ability as high.	3.25	0.44	3.27	0.46	3.25	0.45
Total	29.16	4.17	29.37	4.63	28.85	3.56

Table 5

ANOVA Results for Intellectual Scale Items by Gender (Male vs. Female)

Item	<i>df</i>	Sum of Squares	Sig
I read fast enough to handle assignments at college.			
<i>Between Groups</i>	1	0.32	0.30
<i>Within Groups</i>	30	8.56	
<i>Total</i>	31	8.88	
I have little difficulty with college level work.			
<i>Between Groups</i>	1	0.00	1.00
<i>Within Groups</i>	30	12.00	
<i>Total</i>	31	12.00	
I will need tutoring in a specific course.			
<i>Between Groups</i>	1	2.85E-02	0.80
<i>Within Groups</i>	30	13.19	
<i>Total</i>	31	13.22	
I feel swamped with academic work.			
<i>Between Groups</i>	1	0.91	0.22
<i>Within Groups</i>	30	17.56	
<i>Total</i>	31	18.47	

Table 5 (con't)

ANOVA Results for Intellectual Scale Items by Gender (Male vs. Female)

Item	<i>df</i>	Sum of Squares	Sig
I will graduate with honors.			
<i>Between Groups</i>	1	0.49	0.38
<i>Within Groups</i>	30	18.39	
<i>Total</i>	31	18.88	
I will fail at least one college course.			
<i>Between Groups</i>	1	0.00	1.00
<i>Within Groups</i>	30	22.00	
<i>Total</i>	31	22.00	
I will achieve my academic goals.			
<i>Between Groups</i>	1	0.21	0.36
<i>Within Groups</i>	30	7.51	
<i>Total</i>	31	7.72	
Professors underestimate my ability.			
<i>Between Groups</i>	1	0.52	0.40
<i>Within Groups</i>	30	21.48	
<i>Total</i>	31	22.00	
I am afraid of making mistakes.			
<i>Between Groups</i>	1	3.24E-02	0.84
<i>Within Groups</i>	30	21.97	
<i>Total</i>	31	22.00	

Table 5 (con't)

ANOVA Results for Intellectual Items by Gender (Male vs. Female)

Source of Variation	<i>df</i>	Sum of Squares	Sig
I rate my intellectual skills as high.			
<i>Between Groups</i>	1	0.20	0.31
<i>Within Groups</i>	30	5.80	
<i>Total</i>	31	6.00	

Table 5 shows the results of one-way ANOVA test comparing the intellectual scale responses between the male and female respondents. The ANOVA results identified no significant difference ($p < .05$) between male and female respondents.

Interpersonal Competence

The fourth and fifth research questions asked what are the levels of interpersonal competence among older and younger siblings. The means and standard deviation for all questions were calculated and are presented in Table 6. The older sibling respondents scored higher on 6 of 10 interpersonal scale items. Those items were: I feel empathy for others; I respond to the needs of others; I get along with most people; I am not afraid to show my emotions; I don't mind if friends know my weaknesses; and I rate my interpersonal skills as high. The younger sibling respondents had the highest total mean score ($M = 18.33$) with a standard deviation of 3.35. They also scored higher on 4 of 10 interpersonal scale items. Those items were: I meet people comfortably; I make friends easily; I welcome criticism as an opportunity for growth; and I talk casually and seriously with friends.

The final research question asked are there differences in the levels of interpersonal competences between older and younger siblings. Table 7 shows the results of one-way ANOVA test comparing the interpersonal responses between older and younger respondents. The ANOVA results identified no significant difference ($p < .05$) between older and younger sibling respondents.

Given the lack of significant findings, an analysis by gender was completed. Table 8 shows the results of one-way ANOVA test comparing the interpersonal responses between male and female respondents. The ANOVA results identified no significant difference ($p < .05$) between male and female respondents.

Table 6

Mean Interpersonal Item Scores and Standard Deviation by Sibling Status (Older vs. Younger)

Item	Older		Younger	
	Mean	SD	Mean	SD
I meet people comfortably.	3.31	0.48	3.42	0.51
I feel empathy for others.	3.23	0.44	3.00	1.15
I respond to the needs of others.	3.46	0.66	3.26	0.45
I make friends easily.	3.31	0.48	3.42	0.51
I get along with most people.	3.46	0.52	3.37	0.60
I welcome criticism as an opportunity for growth.	2.85	0.55	2.95	0.52
I am not afraid to show my emotions.	2.77	0.83	2.74	0.45
I talk casually and seriously with friends.	3.31	0.63	3.58	0.51
I don't mind if friends know my weaknesses.	2.85	0.69	2.84	0.60
I rate my interpersonal skills as high.	3.54	0.52	3.32	0.48
Total	17.50	3.29	18.33	3.35

Table 7

ANOVA Results for Interpersonal Items by Sibling Status (Older vs. Younger)

Items		<i>df</i>	Sum of Squares	Sig
I meet people comfortably.				
	Between Groups	1	0.42	0.44
	Within Groups	30	7.08	
	Total	31	7.50	
I feel empathy for others.				
	Between Groups	1	0.97	0.59
	Within Groups	30	25.75	
	<i>Total</i>	31	26.72	
I respond to the needs of others.				
	<i>Between Groups</i>	1	0.54	0.42
	<i>Within Groups</i>	30	8.68	
	<i>Total</i>	31	9.22	
I make friends easily.				
	<i>Between Groups</i>	1	0.63	0.28
	<i>Within Groups</i>	30	6.87	
	<i>Total</i>	31	7.50	

Table 7 (con't)

ANOVA Results for Interpersonal Items by Sibling Status (Older vs. Younger)

Items	<i>df</i>	Sum of Squares	Sig
I get along with most people.			
<i>Between Groups</i>	1	0.37	0.57
<i>Within Groups</i>	30	9.35	
<i>Total</i>	31	9.72	
I welcome criticism as an opportunity for growth.			
<i>Between Groups</i>	1	1.24	0.11
<i>Within Groups</i>	30	7.48	
<i>Total</i>	31	8.72	
I am not afraid to show my emotions.			
<i>Between Groups</i>	1	0.23	0.76
<i>Within Groups</i>	30	11.77	
<i>Total</i>	31	12.00	
I talk casually and seriously with friends.			
<i>Between Groups</i>	1	0.37	0.58
<i>Within Groups</i>	30	9.60	
<i>Total</i>	31	9.97	

Table 7 (con't)

ANOVA Results for Interpersonal Items by Sibling Status (Older vs. Younger)

Items		<i>df</i>	Sum of Squares	Sig
I don't mind if friends know my weaknesses.				
	<i>Between Groups</i>	1	4.79E-02	0.95
	<i>Within Groups</i>	30	12.17	
	<i>Total</i>	31	12.22	
I rate my interpersonal skills as high.				
	<i>Between Groups</i>	1	0.79	0.21
	<i>Within Groups</i>	30	6.93	
	<i>Total</i>	31	7.72	

Table 8

ANOVA Results for Interpersonal Items by Gender (Male vs. Female)

Items		<i>df</i>	Sum of Squares	Sig
I meet people comfortably.				
	<i>Between Groups</i>	1	9.92E-02	0.53
	<i>Within Groups</i>	30	7.40	
	<i>Total</i>	31	7.50	
I feel empathy for others.				
	<i>Between Groups</i>	1	0.41	0.50
	<i>Within Groups</i>	30	26.31	
	<i>Total</i>	31	26.72	
I respond to the needs of others.				
	<i>Between Groups</i>	1	0.30	0.32
	<i>Within Groups</i>	30	8.92	
	<i>Total</i>	31	9.22	
I make friends easily.				
	<i>Between Groups</i>	1	9.92E-02	0.53
	<i>Within Groups</i>	30	7.40	
	<i>Total</i>	31	7.50	

Table 8 (con't)

ANOVA Results for Interpersonal Items by Gender (Male vs. Female)

Items	<i>df</i>	Sum of Squares	Sig
I get along with most people.			
<i>Between Groups</i>	1	6.69E-02	0.65
<i>Within Groups</i>	30	9.65	
<i>Total</i>	31	9.72	
I welcome criticism as an opportunity for growth.			
<i>Between Groups</i>	1	7.91E-02	0.60
<i>Within Groups</i>	30	8.64	
<i>Total</i>	31	8.72	
I am not afraid to show my emotions.			
<i>Between Groups</i>	1	8.10E-02	0.89
<i>Within Groups</i>	30	11.99	
<i>Total</i>	31	12.00	
I talk casually and seriously with friends.			
<i>Between Groups</i>	1	0.57	0.19
<i>Within Groups</i>	30	9.40	
<i>Total</i>	31	9.97	

Table 8 (con't)

ANOVA Results for Interpersonal Items by Gender (Male vs. Female)

Items	<i>df</i>	Sum of Squares	Sig
I don't mind if friends know my weaknesses.			
<i>Between Groups</i>	1	1.27E-02	0.99
<i>Within Groups</i>	30	12.22	
<i>Total</i>	31	12.22	
I rate my interpersonal skills as high.			
<i>Between Groups</i>	1	0.38	0.22
<i>Within Groups</i>	30	7.34	
<i>Total</i>	31	7.72	

Given the lack of significant findings, an analysis by gender was completed. Table 9 shows the mean and standard deviation for the interpersonal responses between male and female respondents. The female respondents had the highest total mean score ($M = 17.92$) with a standard deviation of 3.71. The female respondents scored higher on 8 of 10 interpersonal scale items. Those items were: I meet people comfortably; I feel empathy for others; I respond to the needs of others; I make friends easily; I welcome criticism as an opportunity for growth; I am not afraid to show my emotions; I talk casually and seriously with friends; and I rate my interpersonal skills as high. The male respondents scored higher on 2 of 10 interpersonal scale items. Those items were: I get along with most people and I don't mind if friends know my weaknesses.

To evaluate the differences between sibling pairs, Table 10 shows the total scores and differences between matched pairs of siblings. In 5 of 8 pairs, older siblings reported a higher score on the intellectual scale. While 2 of 8 pairs the older and younger sibling had equal scores. In contrast, 5 of 8 younger siblings reported a higher score on the interpersonal scale. Overall, 5 of 8 older siblings reported higher scores on their younger counterpart.

Summary

In conclusion, the data were analyzed successfully and results were present for review. The results produced important discussion points that will be described in Chapter Five.

Table 9

Mean Interpersonal Scores and Standard Deviation for All Respondents and Gender by Item

Item	All		Male		Female	
	Mean	SD	Mean	SD	Mean	SD
I meet people comfortably.	3.38	0.49	3.33	0.49	3.38	0.50
I feel empathy for others.	3.09	0.93	3.00	0.93	3.13	0.96
I respond to the needs of others.	3.34	0.55	3.27	0.59	3.38	0.50
I make friends easily.	3.38	0.49	3.27	0.46	3.44	0.51
I get along with most people.	3.41	0.56	3.40	0.51	3.38	0.62
I welcome criticism as an opportunity for growth.	2.91	0.53	2.87	0.35	2.88	0.62
I am not afraid to show my emotions.	2.75	0.62	2.67	0.72	2.81	0.54
I talk casually and seriously with friends.	3.47	0.57	3.40	0.63	3.50	0.52
I don't mind if friends know my weaknesses.	2.84	0.63	2.87	0.52	2.81	0.75
I rate my interpersonal skills as high.	3.41	0.50	3.27	0.46	3.50	0.52
Total	17.72	3.40	17.58	3.27	17.92	3.71

Table 10

Matched Pair Analysis of Sibling Pairs by Individual Scale Scores (Older vs. Younger)

Matched Pair		Older	Younger	Difference (Older-Younger)
Sibling Pair 1	<i>Intellectual</i>	36	35	1
	<i>Interpersonal</i>	17	14	3
	<i>Total</i>	53	49	4
Sibling Pair 2	<i>Intellectual</i>	27	27	0
	<i>Interpersonal</i>	18	14	4
	<i>Total</i>	45	41	4
Sibling Pair 3	<i>Intellectual</i>	31	31	0
	<i>Interpersonal</i>	15	17	-2
	<i>Total</i>	46	48	-2
Sibling Pair 4	<i>Intellectual</i>	31	25	6
	<i>Interpersonal</i>	21	24	-3
	<i>Total</i>	52	49	3
Sibling Pair 5	<i>Intellectual</i>	27	26	1
	<i>Interpersonal</i>	13	21	-7
	<i>Total</i>	40	47	-7
Sibling Pair 6	<i>Intellectual</i>	22	25	-3
	<i>Interpersonal</i>	24	14	10
	<i>Total</i>	46	39	7

Table 10 (con't)

Matched Pair Analysis of Sibling Pairs by Individual Scale Scores (Older vs. Younger)

Matched Pair		Older	Younger	Difference (Older- Younger)
Sibling Pair 7	<i>Intellectual</i>	33	32	1
	<i>Interpersonal</i>	13	19	-6
	<i>Total</i>	46	51	-5
Sibling Pair 8	<i>Intellectual</i>	27	22	5
	<i>Interpersonal</i>	19	20	-1
	<i>Total</i>	46	42	4

Chapter Five

Discussion, Recommendations for Future Research and Conclusion

This chapter discusses the results of the study and their implications for future research. The first section provides discussion about the results for all research questions, followed by additional analysis conducted (gender), and finally, considerations for future research.

Discussion

The research questions upon which this study was based were:

1. What are the levels of intellectual competence among older siblings?
2. What are the levels of intellectual competence among younger siblings?
3. Are there differences in the levels of intellectual competences between older and younger siblings?
4. What are the levels of interpersonal competence among older siblings?
5. What are the levels of interpersonal competence among younger siblings?
6. Are there differences in the levels interpersonal competences between older and younger siblings?

Intellectual Competence. The first two research questions asked what are the levels of intellectual competence among older and younger siblings. The older siblings respondents had the highest total mean score ($M = 29.88$) as well as the lowest individual mean score per item ($M = 2.08$). The older siblings also scored higher on 4 of 10 items. The younger sibling respondents scored higher on 4 of 10 items. The older and younger siblings had the same mean score for 2 of 10 items. This does not contradict nor confirms sibling literature, which suggests that older siblings demonstrate higher academic achievement than younger siblings (Bostrom & Prather, 1991; Cherry, 1990; Lamb & Sutton-Smith, 1982; Pfouts, 1980; and Vurdien, 1992). My

findings correlate with the findings in literature about intellectual competence between siblings in childhood, adolescence and late adulthood. This infers that the differences in intellectual competence between siblings are consistent across the lifespan.

The third research question asked are there differences in the levels of intellectual competences between older and younger siblings. The ANOVA results identified that one significant difference ($p = .03$) of 10 items exists between older and younger sibling responses to the statement: I will need tutoring in a specific course.

The results of a one-way ANOVA test comparing the intellectual scale responses between male and female respondents identified no statistically significant findings. No significant findings suggest that the gender of the respondent had no significant influence on the intellectual development of this sibling. These findings suggest that little or no correlation exists between the respondent's gender and their intellectual development.

Interpersonal Competence. The fourth and fifth research questions asked what are the levels of interpersonal competence among older and younger siblings. The older sibling respondents scored higher on 6 of 10 intellectual scale items. The younger siblings respondents had the highest total mean score ($M = 18.33$). The younger sibling respondents also scored higher on 4 of 10 intellectual scale items. Although the younger sibling respondents recorded a higher overall mean score, the older sibling respondents scored higher on a greater number of intellectual individual items. This contradicts much of the literature about siblings, which suggests that younger siblings demonstrate higher interpersonal competence than older siblings (Bostrom & Prather, 1991; Cherry, 1990; Pfouts, 1980; and Vurdien, 1992). This suggests that although older siblings reported more competence in specific areas of interpersonal competence, overall younger siblings have a greater sense of interpersonal competence.

The final research question asked are there differences in the levels of interpersonal competences between older and younger siblings. The results of one-way ANOVA test comparing the interpersonal responses between older and younger respondents yielded no significant findings. This suggests that large changes in development may not occur over a short period of time. These findings do not contradict sibling literature and student development theory, which suggest that significant changes in development do not occur over a short period of time (Rodgers, 1990; Chickering, 1969; and Chickering et al., 1993).

Table 8 shows the results of one-way ANOVA test comparing the interpersonal responses between male and female respondents. Although there were no significant findings, the mean scores demonstrate that female respondents reported a higher total mean score ($M = 17.92$) for interpersonal scale items. Female respondents also scored higher on 8 of 10 interpersonal scale items. This suggests that female respondents have a higher level of interpersonal competence than male respondents.

The matched pair analysis of siblings compared the total scores and differences between older and younger sibling respondent pairs. In 5 of 8 pairs, the older sibling reported a higher score on the intellectual scale. While 2 of 8 pairs the older and younger sibling had equal scores. In contrast, 5 of 8 younger siblings reported a higher score on the interpersonal scale. Overall, 5 of 8 older siblings reported higher scores than their younger counterpart. These findings suggest that older siblings maintain a greater intellectual competence to younger siblings, while younger siblings maintain a great sense of interpersonal competence than older siblings. Although these differences were not significant, they tend to support the literature surrounding intellectual and interpersonal competence of siblings during early childhood, adolescents, and late adulthood

(Bostrom & Prather, 1991; Cherry, 1990; Lamb & Sutton-Smith, 1982; Pfouts, 1980; and Vurdien, 1992).

Overall, the scores for both younger and older siblings were relatively high on both intellectual and interpersonal scales. Thus, the college experience doesn't seem to have a negative effect on them. There is not regression on these developmental tasks.

Limitations and Recommendations

As with all research, this study had limitations. My research was conducted using an instrument that involved self-reporting. Perhaps future research could study the same questions in a different way to control some of the biases self-reporting may have had on the results of this study.

In this study my instrument only contained 10 questions about intellectual competence and 10 questions about interpersonal competence. The instrument may not be sensitive enough to identify differences between older and younger siblings. Future studies could use another instrument with more questions to measure intellectual and interpersonal competence. This may reveal smaller differences that were not identified by the SCS.

My study only represented a small sample of the sibling population enrolled at the same institution during an overlapping period of time. The sample size for this study may be too small to identify differences between siblings. Future research could be conducted with a different sample selection method to identify a larger sample.

My study only represented a snapshot in time of the perceptions of siblings on their own intellectual and interpersonal competence. Future research could be conducted to take a longitudinal approach to this research and measure these students at the beginning of their

experience, at a mid-point, and after graduation. This additional data could provide more depth and perspective to the results.

These results of this study can be used in various constituent groups outside of student affairs including admissions, development, and alumni affairs. The results can be used to identify the desire to identify siblings groups for student recruiting, fundraising, and alumni programming.

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Appendix A

Sense of Competence (SCS), (Janosik, Creamer & Cross, 1987)

This survey is being conducted to explore the sense of competence, specifically social and academic, between older and younger siblings who were both college students at the same institution during an overlapping period of time. For purposes of this study, sense of competence is defined as a feeling of self-confidence about one's interpersonal and intellectual skills (Chickering, 1969). The data collected during this study will be compiled into a thesis to help expand the knowledge base about siblings in general.

Please take a few moments to respond to the questions shown below. The questionnaire consists of 26 items and will take less than four minutes to complete. If you wish to change an answer, scroll back to the item and click on another selection. When you are finished select the "SUBMIT" button to send us your responses.

If you have questions about this research, you may contact Kylie Draucker at (kylie@vt.edu). Thank you for your time and your thoughtful consideration.

Please indicate the degree to which you agree with each of the 20 items found below by marking the best response following the item. The response pattern is as follows:

Strongly Agree
Agree
Disagree
Strongly Disagree

1. I meet people comfortably.

Strongly Agree Agree Disagree Strongly Disagree

2. I read fast enough to handle assignments at college.

Strongly Agree Agree Disagree Strongly Disagree

3. I have little difficulty with college level work.

Strongly Agree Agree Disagree Strongly Disagree

4. I feel empathy for others.

Strongly Agree Agree Disagree Strongly Disagree

5. I will need tutoring in a specific course.

Strongly Agree Agree Disagree Strongly Disagree

6. I respond to the needs of others.

Strongly Agree Agree Disagree Strongly Disagree

7. I feel swamped with academic work.

Strongly Agree Agree Disagree Strongly Disagree

8. I will graduate with honors.

Strongly Agree Agree Disagree Strongly Disagree

9. I will fail at least one college course.

Strongly Agree Agree Disagree Strongly Disagree

10. I make friends easily.

Strongly Agree Agree Disagree Strongly Disagree

11. I will achieve my academic goals.

Strongly Agree Agree Disagree Strongly Disagree

12. I get along with most people.

Strongly Agree Agree Disagree Strongly Disagree

13. Professors underrate my ability.

Strongly Agree Agree Disagree Strongly Disagree

14. I am afraid of making mistakes.

Strongly Agree Agree Disagree Strongly Disagree

15. I welcome criticism as an opportunity for growth.

Strongly Agree Agree Disagree Strongly Disagree

16. I am not afraid to show my emotions.

Strongly Agree Agree Disagree Strongly Disagree

17. I talk casually and seriously with friends.

Strongly Agree Agree Disagree Strongly Disagree

18. I don't mind if friends know about my weaknesses.

Strongly Agree Agree Disagree Strongly Disagree

19. I rate my interpersonal skills as high.

Strongly Agree Agree Disagree Strongly Disagree

20. I rate my intellectual ability as high.

Strongly Agree Agree Disagree Strongly Disagree

DEMOGRAPHICS

I am:

Male Female

I have one or more siblings with whom I attend the same college.

Yes No

The sibling with who I attend college is:

Male Female

The sibling with who I attend college is:

Older Younger

How many close friends do you have?

How many casual acquaintances do you have?

Please enter your assigned code number in order to submit your responses. This code will be used to award 3 FIFTY-DOLLAR (\$50) PRIZES and for data analysis purposes.

Please click on the "SUBMIT" button when you have finished. If you wish to change your response, scroll back to the item and click another response.

Completion and submission of this on-line questionnaire serves as your consent to use the data for research purposes only.

I appreciate your response to this survey. If you have any further questions please feel free to contact Kylie Draucker at (kylie@vt.edu).

Appendix B
Email to Participants

This survey is being conducted to explore the sense of competence, specifically social and academic, between older and younger siblings who were both college students at the same institution during an overlapping period of time. The data collected during this study will be compiled into a thesis to help expand the knowledge base about siblings in general.

Please take a few moments to respond to the questions shown below. The questionnaire consists of 26 items and will take less than four minutes to complete.

Please enter your assigned code number in order to submit your responses. This code will be used to award 3 FIFTY-DOLLAR (\$50) PRIZES and for data analysis purposes.

Your code is: 101

Please complete the online survey at

<https://survey.vt.edu/survey/entry.jsp?id=1076352531261>

If you have questions about this research, you may contact Kylie Draucker at (kylie@vt.edu).
Thank you for your time and your thoughtful consideration.

Thanks for your time and consideration.

Kylie Felps Draucker kyli