

THE PENNSYLVANIA STATE UNIVERSITY  
SCHREYER HONORS COLLEGE

DEPARTMENT OF COMMUNICATION SCIENCES AND DISORDERS

PERSPECTIVES OF COLLEGE-AGED INDIVIDUALS WITHOUT AUTISM ON  
FACEBOOK FRIENDSHIPS BASED UPON THE FOUR QUALITIES OF FRIENDSHIPS

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SPRING 2015

A thesis  
submitted in partial fulfillment  
of the requirements  
for a baccalaureate degree  
in Communication Sciences and Disorders  
with honors in Communication Sciences and Disorders

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## ABSTRACT

High quality friendships are extremely important to the self-worth and well-being of college-aged individuals. Previous studies have found that college-aged individuals spend a great deal of time on social media sites, especially Facebook, interacting with these friends. The purpose of this study was to determine if individuals without Autism Spectrum Disorder (ASD) consider their friendships on Facebook to be high quality. Friendship quality was defined by the four aspects of friendship quality contained in the validated Friendship Quality Scale. The results of an online survey of 197 individuals between the ages of 18 and 24 years old found that face-to-face interactions with friends could not be replaced through Facebook interaction. Results concluded that closeness was the most important friendship quality to the respondents. A large majority of the participants reported that many Facebook constructs help them to feel closer to their friends. This study is part of a larger study, which will compare the results of individuals without ASD to a population of same age individuals with ASD.

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## ACKNOWLEDGEMENTS

I would first and foremost like to thank my family for constantly supporting me throughout the trials and tribulations of my academic career at Penn State. I would also like to thank the following individuals that I was fortunate enough to have throughout this process: Mary Claire Doyle, for encouraging me to join the Honors College. Dr. Erinn Finke, for supporting my ideas from the beginning and for her constant guidance as my thesis advisor. Dr. Ingrid Blood, for being a great supporter throughout my honors career and for her constant positivity. Dr. Kathryn Drager, for her writing advice and insight. Without all of you, none of this would have been possible. Thank you

## **Chapter 1**

### **Introduction**

#### **Friendship**

Friendships are an important aspect in the life of every typically developing 18-24 year old. In a study conducted by Mendelson and Aboud (1999) found that college juniors who identified having a long-term best friend had greater self-esteem than those who did not. These long-term friendships were more positive and satisfying than recent friendships, which were also reported as being positive and satisfying, just on a lesser scale. Women reported feeling more positive and satisfied by friendships than males. Both male and female participants reported closeness to a friend being the most important aspect of their friendships. However, females ranked their friendships higher in closeness, and all other friendship qualities, than males. (Mendelson & Aboud, 1999)

A study of college freshmen confirms that long-term friendships are of higher quality than new friendships. This study conducted by Pittman and Richmond took survey results of college freshmen during the fall and spring semester of their freshman year. When analyzing the results, approximately 60% of the students had a positive increase of overall friendship quality with their college friends from the fall to spring semester, meaning that just a few months can increase the positive effects of friendships. This increase of friendship quality also reflected an increase in self-confidence and perceived approval from peers. (Pittman & Richmond, 2008)

These studies combined show that having friendships at this “college-aged” stage of life is important to an individual’s overall self-worth and quality of life.

### **Friendship Quality Scale**

The Friendship Quality Scale developed by Thien, Razak, and Jamil (2012) was developed to empirically determine which of the features identified in the research literature on friendship are the most important in having high-quality friendships. To design this scale, the researchers combined the previous literature on friendship quality into a scale, which they then piloted with secondary school teachers and students. The pilot was sent out to almost 500 other student volunteers to collect data. The data from these volunteers was then analyzed in a statistical factor analysis to determine the reliability of the items. As a result of this analysis, the researchers cut out 17 total items, which fell under the factor analysis cutoff value or were found to be significant within two factors. The items found to cluster together were then labeled of Safety, Closeness, Acceptance and Help, creating a reliable scale. (Thien, Razak, Jamil, & Australian Association for Research in Education, 2012) Through this process, the scaled was validated both quantitatively and qualitatively.

This validation process resulted in a scale combining all previous methods of researching friendship quality into 21 items. Each section of safety, closeness, acceptance, and help has a various number of items. These items were decided upon based on the factor analysis of the pilot study and where the items factored. The safety dimension includes eight items. The closeness dimension includes six items. The acceptance section includes four items. The help section



includes three items. (Thien et al., 2012) As previously stated, this Friendship Quality Scale has been included in many other studies since its creation.

## **Facebook**

Facebook is increasingly becoming a crucial part of the everyday life of an 18-24 year old individual. Pempek, Yermolayeva, and Calvert (2009) discovered that during the week undergraduate students spent between two minutes and two hours using Facebook every day. On the weekend, that time varied even more, with students spending anywhere from no time on Facebook to two hours and 45 minutes on Facebook per day. Students also reported that regardless of how much they had to do during the day, Facebook was always incorporated. (Pempek, Yermolayeva, & Calvert, 2009)

Findings have varied behind the biggest motivators behind Facebook usage, however friendship is always included as one of the largest. In a 2014 study, Park and Lee found that relationship maintenance was the third largest motivator for undergraduate student Facebook usage, following entertainment and communication. However, none of these motivators correlated with a person's feeling of belonging to a group. (Park & Lee, 2014)

## **Autism**

Autism Spectrum Disorder (ASD) is defined and diagnosed according to the DSM-V criteria. Individuals on the Autism Spectrum have difficulty with social communication and interactions and exhibit repetitive behaviors or interests. These deficits emerge in early childhood, and cannot be better explained by any other sort of intellectual disability. To receive a

diagnosis of ASD, these deficits must also cause substantial difficulties in functioning. There are more individuals now diagnosed with ASD than ever before. Approximately 1% of the population in the U.S. has an ASD diagnosis. (American Psychiatric Association & American Psychiatric Association, 2013) Autism Spectrum Disorder affects more males than females, with 1 in every 42 boys and only 1 in every 189 girls in the U.S. receiving a diagnosis (Autism Speaks, 2015). Individuals on the Autism Spectrum may struggle with many social communication skills and friendships, such as making and maintaining eye contact, failure to respond to those around them, poor attention, little interest in interactions with others, difficulty taking another person's point of view, and difficulty with appropriate social reciprocity according to the National Institute of Mental Health. (National Institute of Mental Health, n.d.) Individuals with ASD may also have difficulty recognizing and understanding facial expressions and have atypical responses to the emotions of those around them (Rump et al., 2009). Along with repetitive behaviors, individuals with ASD often have a presence of echolalia or repeating words and phrases they have heard before in inappropriate contexts. These struggles make it difficult for individuals with ASD to make and maintain friendships in face-to-face interactions. (National Institute of Mental Health, n.d.)

Although there is not much research conducted involving adolescents and young adults with ASD, studies involving younger students with ASD have demonstrated that individuals with ASD struggle with friendships. A study conducted by Bauminger and Kasari comparing high functioning children with ASD and their typically developing peers found that less than 10% of children with ASD were able to give a complete definition of friendship whereas 47% of their typically developing peers were able to give a complete definition of friendship. This could contribute to the difficulty many individuals with ASD have with understanding the difference

between a friend and an acquaintance and how to behave around a friend. The children in the Bauminger and Kasari study reported they do want to have friendships, and stated that they indeed have at least one friend. Those with a close or best friend had lower levels of loneliness than those who did not report having a best friend. However, they rated their “best friendships” as having less quality than their typically developing peers rated these friendships. This study also used the Friendship Quality Scale as a basis for research design. This survey also found that children with ASD were able to define loneliness and felt more lonely than individuals without ASD. (Bauminger & Kasari, 2000)

A study conducted by Mazurek confirmed these findings with adults with ASD between 18 and 62 years old, and added findings on how individuals with ASD communicate with friends. Most individuals in this population also reported having at least one close friend, like the Bauminger and Kasari study. Those having a close friend reported less loneliness than individuals without a close friend. This study also found that individuals spent more time communicating with friends using electronic means than phone contact or visits with the friend. (Mazurek, 2014)

However, this deficit has a possibility to be overcome by screen-based technologies. Shane and Albert determined that individuals with ASD spent most of their leisure time participating in screen-based technologies than any other type of leisure activity (2008). Because screen-based technologies do not involve the social difficulties previously discussed with individuals with ASD, this could become an outlet for individuals with ASD to form the friendships they crave. (Shane & Albert, 2008)

## Research Question and Hypothesis

This research answered the question, “How do individuals without ASD perceive their Facebook friendships as defined by the items of the Friendship Quality Scale?” It was hypothesized that individuals without an ASD diagnosis would perceive their Facebook friendships in the same way they perceive their face-to-face friendships. The long-term goal of this research project is to determine if individuals with ASD perceive their friendships over Facebook more like their typically developing peers, since they are more comfortable with screen-based technologies which avoid some of the social difficulties they face.

In order to answer this question, we designed an online survey based on the Friendship Quality Scale, which has been used in many other studies to determine the quality of friendships. Although currently the survey used in this study is not validated to compare directly to the original Friendship Quality Scale study, researchers will use the data from this study to compare to the findings of a future study. The future study will determine the views of individuals with ASD of the same age cohort and compare and contrast these findings to the findings from this study. Mazurek (2013) determined that individuals with ASD who used social media sites are more likely to have friends than adults with ASD who did not use social media sites. Based on this study, researchers wanted to determine whether these friendships were perceived to be of the same quality as friendships of typically developing peers.

## **Chapter 2**

### **Method**

#### **Participants**

The respondents of this survey consisted of 18-24 year olds without an ASD diagnosis. Every participant was required to have a personal Facebook account. Any participant not within the age range or without a Facebook profile was thanked for their willingness to participate, but was not allowed to continue the survey. Participants were recruited through multiple Facebook posts, mainly Facebook status posts and public and private Facebook group posts. These posts briefly explained the study's purpose and included the link to the online survey. Participants were also recruited through an upper level undergraduate class, with survey participation offered as extra credit. Participants gave their informed consent to participate before beginning the survey and were thanked for their participation at the conclusion of the survey.

#### **Research Design**

The research study was designed as an online survey created using the Penn State Qualtrics® system. Approval through the Institutional Review Board (IRB) was obtained prior to the initiation of any research activities. The survey questions were designed by taking the items from the Friendship Quality Scale and modifying each item to relate to Facebook friendships, instead of the face-to-face friendships the Friendship Quality Scale has previously studied. The

Friendship Quality Scale was used as a basis for design of this research because it has been validated and peer-reviewed. It has also been mentioned and used in numerous research studies pertaining to face-to-face friendship interactions. This Scale proved to be the best and most reliable way to measure Facebook friendships for this study. Researchers used the 21 validated statements from the Friendship Quality Scale and examined which items could be translated to Facebook interactions. Researchers took each question that could relate to Facebook friendships and interactions and reviewed which Facebook constructs could be used in the same contexts as the face-to-face interactions in which the items were referring. Finally, researchers created the final set of statements and questions used in the safety, closeness, acceptance, and help sections of this survey by modifying the Friendship Quality Scale items and rewriting the items in ways that would make sense with Facebook interactions (Appendix A presents the complete survey). Although a factor analysis based on this data did not validate this scale as valid as the Friendship Quality Scale, these items will be used to compare the perceptions of Facebook friendships of individuals without ASD (which is what this study looks at) to the perceptions of Facebook friendships of individuals with ASD.

An online survey proved to be the most efficient means to research perceptions of Facebook friendships. The online survey provided a wide range of participants with various demographics to answer the same questions. An online survey provided a uniformed platform for the participants to provide concise answers. Also, the online survey was most efficient to find overall trends in the participant's personal feelings towards their Facebook friendships. An online survey was the best means to reach the targeted respondents, because those who use Facebook must have connection to the Internet. Finally, a uniformed survey will prove easiest to

compare the results of the individuals without an ASD diagnosis to the results of the individuals with an ASD diagnosis in the future.

### **Survey Instrument and Administration Procedure**

The survey was comprised of six sections: demographics, general Facebook usage, safety, closeness, acceptance, and help. Each section contained approximately five questions. However, since most questions were in the form of a matrix, more statements were contained within each question. The survey was self-reported. In order to keep the survey concise, open-ended opportunities were extremely limited and only used once in the demographics section and once in the Facebook usage section. There were a few opportunities in multiple choice or multiple select questions in which a participant could chose “Other” and was given the opportunity to explain in a text box. All other questions were multiple choice, select all that apply, or likert scale questions. No back button was provided, in order to ensure the most honest answers. Based on the number of questions and question types, the survey took approximately 20-25 minutes to complete.

### **Data Analysis**

The data was downloaded from Penn State Qualtrics® website into a Microsoft Excel document. This document contained the question at the top of each column, followed by the participants’ responses in the rows of that column. The “COUNTIF” Excel function was used to determine the number of people who responded to a multiple choice question the same way. Then, that number was changed into a percentage using the division formula provided by Excel.

## **Chapter 3**

### **Results**

#### **Participant Demographics**

During the survey's active period, a total of 308 individuals began the survey through the Penn State Qualtrics®. Individuals who were not within the age range or did not have a personal Facebook profile were not allowed to continue with the survey, and were not included in the current data analysis. Surveys completed only partially were also excluded. Ultimately, there were 198 completed surveys. Although 198 participants completed the survey in full, one individual had an ASD diagnosis. One survey was completed by an individual with an ASD diagnosis. This survey was also excluded from the current analysis. The data from the other 197 participants were included in the following analysis.

Penn State Qualtrics® data returned results on the basic demographic background of all the participants, which varied greatly. More detailed demographic information is presented in Table 1. The ages of participants ranged from 18-24 years old, with the mean age of participants being 21. A majority of the participants (84%) were female, and the remaining 16% were male. Respondents hailed from all over the United States, with the majority of participants coming from either Pennsylvania (55%) or Illinois. A vast majority of the respondents identified as white (94%). A little more than half of the respondents were attending college at the time of the survey. Approximately 37% of participants were attending college and held a job.



		Participants (n=197)	
	<i>Sex</i>		<i>Marital Status</i>
Male		31	Single
Female		166	Married
	<i>Race</i>		<i>Highest Level of Education Completed</i>
White		185	High School
African-American		5	Associate's Degree
Asian		13	Bachelor's Degree
American Indian/Alaska		1	Master's Degree
			Doctorate
	<i>College Student or Job Holder</i>		
College Student		107	
Hold a Job		16	
Both		73	
Neither		1	

**Table 1. Detailed Participant Demographic Information**

### General Facebook Usage

Data were analyzed to find the general trends of Facebook usage among the participants. Participants had been using Facebook anywhere from 2-10 years, with an average of 7.7 years. The participants spent an average of 22 minutes per day on Facebook, but ranged from spending less than ten minutes to more than two hours on the website per day. However, when asked how often participants use Facebook to connect with friends only 28% of respondents said they used Facebook for this purpose at least once a day. Most of the participants (66%) reported Facebook did not play a large role in their social lives. When asked which mode of communication participants used most on Facebook, only 30% said private messages, followed closely by liking

friends pictures (25%), and posting pictures with friends (17%). When asked how participants felt when they interacted with others on Facebook a majority (64%) said they felt happy, followed by indifferent and calm. This was a multiple select question, resulting in percentages adding up to over 100%. When asked which of the four Friendship Qualities was most important to them on Facebook, the results were quite varied. The Friendship Quality that respondents reported to be the most important was closeness (38%), followed by acceptance (26%) and safety (25%). An overwhelming majority of participants said they spend most of their time maintaining friendships in person (84%). Most participants (75%) also prefer to maintain their friendships in person rather than online.

## **Safety**

To determine how safe participants felt interacting with their friends on Facebook, researchers modified the safety quality items from the Friendship Quality Scale to match Facebook relationships. In the safety section, over half of the participants (61%) did not trust the information their friends posted on Facebook. About the same proportion of participants (60%) believed their friends would post an embarrassing photo of them on Facebook. Almost all of the participants reported they would not trust an article their friends posted on Facebook without double-checking (92%). Overwhelmingly, participants trusted that a friend would not post a secret shared between the two of them to Facebook (93%).

About half of the participants (48%) agreed that they would help protect a friend from anything that may be posted that would reflect negatively on them, and would appreciate if friends did the same (54%). A little over half of the participants agreed they would appreciate if a

friend informed them if they posted something inappropriate (54%) or something that could get them into trouble (57%). Many participants (61%) stated they can trust a friend on Facebook with personal information even though the discussion is not face-to-face.

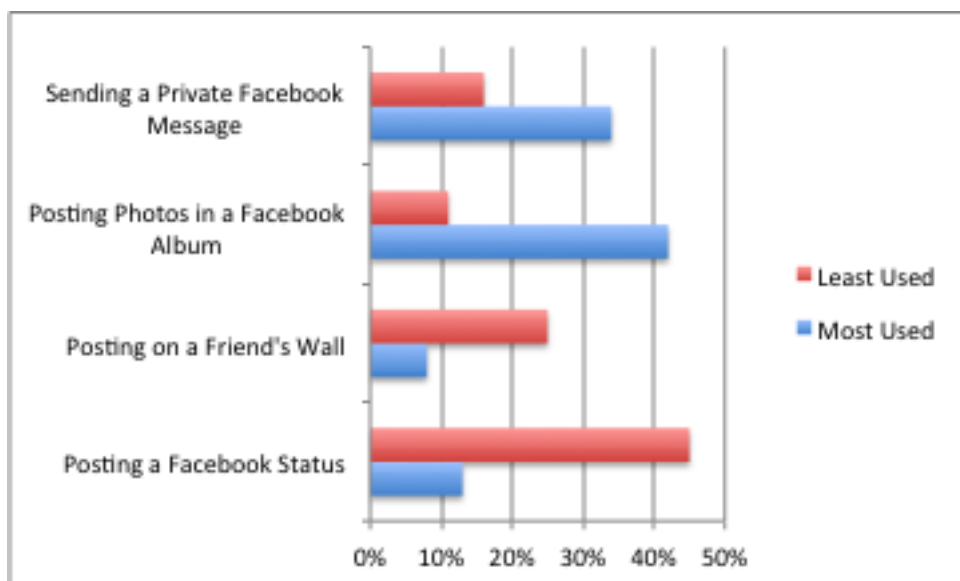
When asked how likely participants would be to ask for advice on Facebook, over half of the participants responded they would be at least slightly unlikely to ask for advice through a Facebook status, a post on a friend's wall, or a post on a group page. However, 70% of respondents reported at least being somewhat likely to send a private Facebook message to ask for advice. See Table 2 for complete results on this section.

**Table 2. Likelihood of Participants Asking for Advice via Various Facebook Constructs**

<b>Ask for advice via...</b>	<b>Very Unlikely</b>	<b>Unlikely</b>	<b>Somewhat Unlikely</b>	<b>Undecided</b>	<b>Somewhat Likely</b>	<b>Likely</b>	<b>Very Likely</b>
<b>Posting Facebook Status</b>	41%	21%	12%	3%	15%	7%	1%
<b>Sending a Facebook message</b>	10%	7%	8%	5%	30%	25%	15%
<b>Posting on a friend's wall</b>	43%	32%	9%	3%	10%	2.5%	.5%
<b>Asking on a group page</b>	29%	22%	13%	5.5%	20%	5.5%	5%

The results for determining what Facebook constructs individuals use to keep friends updated with their life were found to be somewhat inconclusive. Slightly less than half of the participants reported that uploading pictures to Facebook was their most used means of updating friends on their life (42%), while posting Facebook status updates was the least means (45%). See Figure 1 for complete information regarding most used means of updating friends of life events and Figure 2 for complete information regarding least used means of updating friends.

**Figure 1. Most and Used Means of Updating Friends of Life Events**



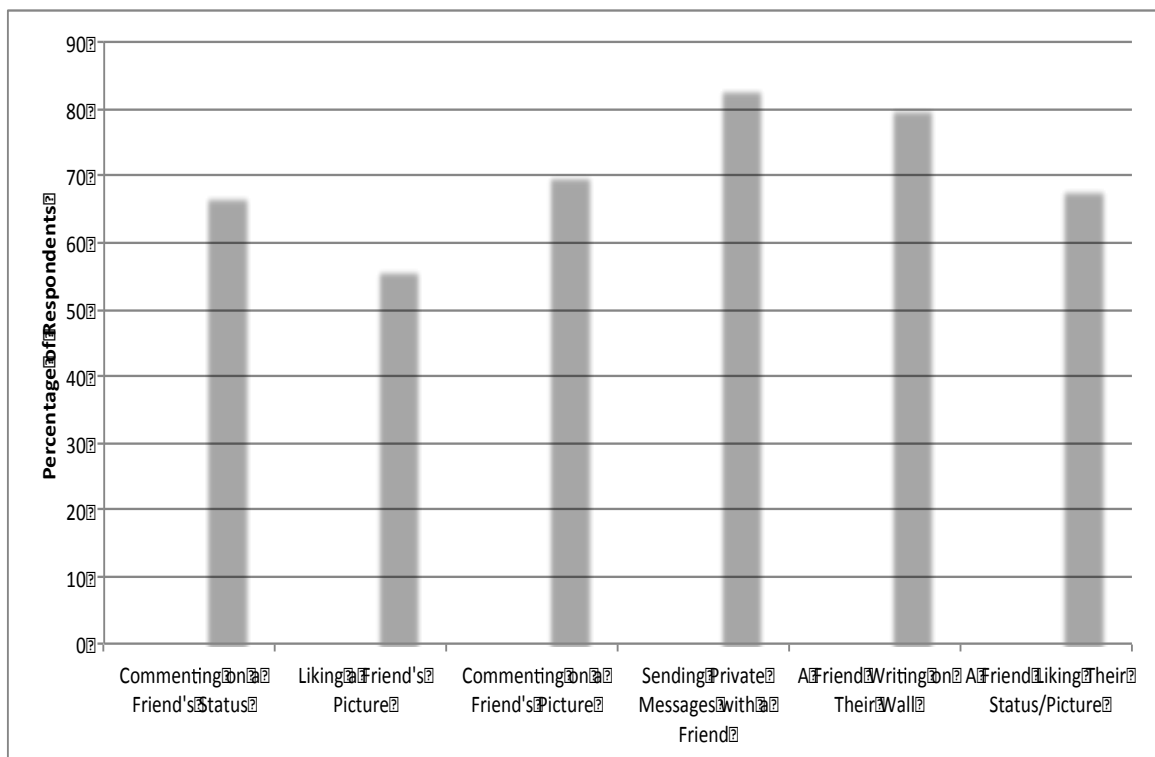
## Closeness

Across the board, participants were split on the constructs of closeness as represented by the Friendship Quality Scale items. About half (47%) of the participants agreed that Facebook helped them to better understand their friends' backgrounds and express their own interests to their friends (43%). Over half of the participants (59%) have never had second thoughts when posting something humorous as a status. A number of participants (61%) felt comfortable joking with friends on Facebook. Participants also agreed that they are able to figure out a friend's mood by what the friend posts in a private Facebook message (62%).

Many Facebook constructs allowed participants to feel closer to friends. Participants concluded that many Facebook constructs made them feel closer to friends including including commenting on a friend's status, liking or commenting on a friend's picture, sending private messages with a friend, having a friend write on their wall or a friend liking their status or

picture. The exact percentages of the constructs with the most votes are found in Figure 3. The percentages add up to more than 100% because this was a question in which participants could select more than one answer. Finally, there were many Facebook constructs participants would feel comfortable using to communicate with a friend they had not talked to in a while, most notably Facebook private message (81%) and posting on that friend's wall (43%).

**Figure 2. Facebook Interactions which Made Respondents Feel Closer to Friends**



## Acceptance

The first block of questions in the acceptance portion of the survey proved to be statistically insignificant. However, a great majority of participants agreed that friends frequently

post positive comments on pictures posted on Facebook (62%) and like their statuses on Facebook (56%). Respondents also agreed that their friends post on their walls as much as they post on their friends walls (55%). They also agreed they are comfortable posting or sharing things on a friends Facebook wall (68%) or in a private Facebook message (57%). Respondants said they feel most accepted by friends on Facebook when friends post on their wall (38%). This was a question that allowed for open answers, to which two individuals said Facebook does not make them feel accepted, only in person do they feel accepted. There was inconclusive data on whether or not participants felt Facebook made their relationships stronger.

## **Help**

When asked what friendship skills Facebook interactions have strengthened, the largest group of respondents reported Facebook interactions did not strengthen any friendship skills. A little over a third of the respondents reported that Facebook interactions have helped them to initiate conversations. This group was followed by slightly smaller groups which indicated an increased strength in the skills of making small talk, continuing a conversation, and knowing when a conversation has ended.

Respondents agreed that their friends would be likely to offer help with a problem when asked for help over Facebook. Over half of the respondents believed that friends would respond to a Facebook status posted asking for help. When the method of asking for help moved to wall posts, the group of respondents who agreed a friend would help jumped to three quarters of the overall respondents. The largest group who agreed that a friend would respond to a request for help was 91% of respondents, when the mode was private Facebook message. When the

respondents were asked if they would be able to help a friend on Facebook, a large majority stated that they could help a friend who asked for it via Facebook.

Only 45 participants have ever made a friend through Facebook. Further, friendships made exclusively because of Facebook did not seem to be as strong as friendships made through face-to-face interactions. When asked which friend they could call in the middle of the night and have answer the phone and talk, 80% said a friend made first in person. When asked if they would answer the phone in the middle of the night, 62% said they would only for a friend made in person and 38% said they would for both types of friends. When asked if they could recall times that this type of friend has helped them, 44% said they could only recall times when a friend made first in person had helped them but 56% said they could recall times when both a friend made in person and through Facebook had helped them. When asked if it was important to help this type of friend whenever possible, 47% said only in-person first friends were important to help whenever possible and 53% said both types of friends were important to help whenever possible. When asked which type of friend would help if the participant told them they were in trouble, 67% of them said only friends made in person first would help them and 33% said both types of friends would help them.

## **Chapter 4**

### **Discussion**

The purpose of this study was to investigate how individuals without ASD perceive their friendships on Facebook, a screen based social media site. The survey used questions based on the four dimensions of friendship determined by the Friendship Quality Scale: safety, acceptance, closeness, and help. This survey will become the first of its kind to use self-reporting to analyze how individuals with ASD view their Facebook friendships, and the differences and similarities between the group of participants without ASD and participants with ASD.

This study of 18-24 year olds without an ASD diagnosis had many interesting findings. The study found that 18-24 year olds are using Facebook less than past studies have suggested and with decreasing importance. Only about half of the participants felt safe in their interactions with friends on Facebook. However, an overwhelming majority of participants felt that the constructs of Facebook help them feel closer to their friends. Participants reported that friends frequently post positive feedback to their Facebook posts and friends seem to post as much as the participants of this study post on Facebook. Although the sample did not see an increase in friendship making skills because of Facebook, the participants did feel they could reach out for help through Facebook and receive that help from friends. The following section will further discuss the results of the study, limitations of the study, future directions of this study.



## Results

The results from this study discovered that the participants used Facebook less than past studies found college-aged individuals used Facebook, including minutes per day and days per week spent using Facebook. Individuals in this survey This may be attributed to a few factors, including the availability of more social media sites and a decrease of Facebook relevance for this population. Because of the increased number of social media sites, time that used to be spent only on Facebook may now be split between many social media sites. As new social media sites are created, the older sites may fade in popularity and usage. Only slightly less than half of the respondents reported Facebook was important to their social life, further reflecting a decrease in relevance. Further, the vast majority of participants reported they would rather maintain their friendships in person than online, ensuring the need for face-to-face interactions with friends still remains.

The results from the study determined participants did not necessarily feel safe interacting with friends on Facebook. Individuals without ASD did not trust the information friends posted on Facebook. They also did not trust friends would not share embarrassing photos on Facebook. However, they trusted friends would keep secrets between the two safe and would not post those secrets on Facebook. Participants also agreed they would protect a friend from any content that was inappropriate or could get a friend in trouble on Facebook, and would appreciate if a friend would do the same. The only way participants would even be slightly likely to reach out for advice would be through Facebook private messenger. It will be interesting to see how individuals with an ASD diagnosis respond to the safety section of the survey, to see if their struggles with understanding topic appropriateness would influence whether they care about what is posted on their Facebook or a friend's Facebook. Topic appropriateness which

individuals with Autism struggle with would also affect where they post on Facebook to ask for help with solving a personal problem.

The items in this study relating to closeness discovered that Facebook has the ability to make 18-24 year old individuals feel closer to their friends. Participants concluded that many Facebook activities give them the opportunity to feel closer to their friends, especially private messages, commenting on a status or a picture, when a friend writes on their wall, or when commenting on a friend's picture. Knowing that individuals without ASD are able to feel closer to their friends because of Facebook gives hope that individuals with ASD might be able to use Facebook, with the proper training, to feel closer to their peers. In this section, participants also reported they were able to figure out how their friends were feeling based upon what a friend posted in a private Facebook message. This too gives hope that individuals with ASD might be able to improve their skills of putting themselves in someone else's shoes through Facebook usage, since this is an area where individuals with ASD tend to struggle (NIMH, n.d.).

The acceptance portion of the survey did not prove to be conclusive. Upon investigation of this portion, participants did not feel comfortable solving differences in opinion over Facebook. However, more than half of the participants did say that friends post positive feedback on their Facebook posts.

Finally, the help portion of this survey provided much significant data to use to compare to individuals with ASD. Participants without ASD did not think Facebook improved any friendship making skills. However, individuals without ASD do not usually struggle with these skills, especially turn taking and being able to take another person's point of view (NIMH, n.d.). There is a possibility that this is one area where the population with ASD may differ dramatically from the answers of the population without ASD. Participants in this study also

reported that they believed friends would respond to a request for help through Facebook, especially Facebook private message. Helping friends is a way to strengthen bonds between friends to create better quality friendships leading to less loneliness and greater self-worth as reported from the literature review.

### **Limitations**

There are a few main limitations with this study. The first is associated with the participant sample. The participants for this portion of the study were overwhelmingly female (84%). According to Autism Speaks, ASD affects boys five times more than it affects girls (2015). This discrepancy may skew the comparative results with the ASD population. Also, the survey was self-reported, which may have caused individuals report false feelings, or feelings not to the same effect as they really are. The third limitation is that through a statistical analysis, the questions did not correlate directly with the Friendship Quality Scale. Although this survey was based heavily upon the Friendship Quality Scale, it cannot be compared exactly. However, once the data from individuals with ASD is processed this may possibly change. There is also little literature representing this population of individuals with ASD, which may make the continuations of this study difficult. Finally, Facebook is becoming less of a staple in the friendships and social interactions of this population. Because of this decrease in Facebook usage, this data may not hold relevance for a long period of time.

## **Future Directions**

As previously stated, this is only part one of a two part study. Next, researchers will have to recruit individuals with ASD and gather data from their survey answers. After the population with ASD has taken the survey and their results analyzed, the results of the population with ASD should be compared to the population without ASD. With this comparative study, researchers will be able to decipher if the trends in this study align with individuals who do not have an ASD diagnosis. Once the comparative analysis is finished, researchers can then look into the implications for clinical practice.

Once the data is analyzed and compared, researchers will be able to determine if this information can be used in therapy with individuals diagnosed with ASD. If researchers prove that individuals with ASD struggle on Facebook in areas that individuals without ASD do not struggle, Facebook may be able to be used to teach improve these areas in individuals with ASD. Therapy with a focus on Facebook interactions may help individuals with ASD interact more like their neuro-typical peers on Facebook and even on other social media sites. This type of intervention would provide a unique challenge, because most therapists who would be instructing these individuals would be much older than the individuals themselves. This generation gap would create holes in areas such as lingo, conversational topics, and even Facebook usage. A bridge to cover this generation gap would need to be used, such as peer mentors helping to teach Facebook fundamentals to individuals with ASD. Hopefully, this type of therapy will provide individuals with ASD a level of comfort in these areas and help them to generalize these skills to face-to-face interactions in the future.

## Appendix A

### Facebook Friendship Quality Survey Questions for Individuals without ASD

Penn State University

You have chosen to participate in a study being conducted by researchers at Penn State University. The purpose of this study is to investigate the use of Facebook to create and maintain friendships by 18-24 year olds with and without Autism Spectrum Disorder. If you choose to complete this survey we will be asking you to answer a series of questions requiring approximately 10-15 minutes of your time. Participation in this research study is voluntary. By completing the survey you are providing your implied consent to participate in this investigation. There is no anticipated risk to you in participating in this research. Thank you for helping us with this research project. Your input is invaluable and will certainly help us to answer important research questions

- I agree to participate in this research study
- I do not want to participate in this research study

What is your age?

- 17 or younger
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25 or older

Do you have a Facebook profile?

- Yes
- No

What is your sex?

- Male
- Female

In what city and state do you live?

What is your racial background? Please check all that apply.

- American Indian/Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Black or African American
- White

Do you attend college, have a job, or neither?

- I attend college.
- I have a job.
- I attend college and have a job.
- I do not have a job or attend college.

What is the highest level of education you have completed?

- Elementary School
- High School
- 2-year College (Associate's Degree)
- 4-year College (Bachelor's Degree)
- Graduate Studies (Master's Degree)
- Post-Graduate Studies (Doctorate)

Which of the following best describes your marital status?

- Single
- Married
- Divorced
- Widowed

Do you have an ASD (Autism Spectrum Disorder) diagnosis?

- Yes
- No

When did you join Facebook?

On average, how much time per day do you spend on Facebook?

- Less than 10 minutes
- Between 10 and 30 minutes
- Between 30 minutes and 1 hour
- Between 1-2 hours
- 2 or more hours

How often do you use Facebook to connect with friends?

- Never
- Less than Once a Month
- Once a Month
- 2-3 Times a Month
- Once a Week
- 2-3 Times a Week
- Once a Day
- More than Once a Day

Do you feel as though Facebook plays a large role in your social life?

- Yes
- No

What method of communication do you use most on Facebook?

- Posting statuses
- Commenting on friends' statuses
- Liking friends' statuses
- Posting on friends walls
- Sharing links with friends
- Chatting through private messages
- Posting pictures with friends
- Liking friends' pictures
- Commenting on friends' pictures

In general, what emotions do you feel when you interact with friends on Facebook? Please choose all that apply

- Excited
- Nervous
- Fearful
- Happy
- Hopeful
- Hesitant
- Calm
- Giddy
- Worried
- Self-conscious
- Indifferent

When I interact with a friend on Facebook, it is most important to feel...

- Close to them
- Accepted by them
- Helpful to them
- Safe while interacting with them

How do you prefer to maintain most of your friendships?

- Facebook or online
- In person
- Equal amount of time in person and online
- Does not matter

Do you spend most of your time connecting with your friends online or in person?

- Facebook or in another way online
- In person
- Equal amount of time in person and online

For the purposes of this research study, a friend is defined as:

1. A person outside of your family, whom you currently feel you can trust with personal information, secrets, or beliefs.
2. Someone who will not judge you and will accept your flaws.
3. Someone you can rely on to keep private information private, and someone who will have your back.
4. Someone you would feel comfortable spending time an extended amount of time with, no matter how frequently you interact with them.
5. Someone who would mutually consider you to be their friend also.

Some helpful examples and characteristics of a friend include: Someone who you would could talk to if something really bad happened in your life; or someone who will be there for you when the going gets tough. Someone who you can count on, someone who you would talk to about a serious problem, or someone who has your back. Someone you could invite to stay over at your house.



Please choose how you feel about the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I believe all of the information my friends post on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think every article my friends post on Facebook is factual without double checking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends would never post something embarrassing about me on Facebook as a status.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends would never post a secret I shared with them on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends would never post an embarrassing photo of me on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends only post truthful things on my wall.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please choose how you feel about the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I would inform my friends immediately if they posted something on Facebook that could get them into trouble.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would inform my friends immediately if someone had posted something inappropriate on their Facebook page.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would appreciate if a friend informed me that I had posted something inappropriate on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would appreciate if a friend informed me that I had posted something on Facebook that could get me into trouble.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I talk to a friend on Facebook, I know I can trust them with personal or private information, even though we are not talking face to face.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How likely would you be to do the following:

	Very Unlikely	Unlikely	Somewhat Unlikely	Undecided	Somewhat Likely	Likely	Very Likely
Creating a Facebook status to ask friends for advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reaching out to a friend via Facebook message for advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Posting on a friend's wall to ask for advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Asking for advice on a group page.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rank which methods of Facebook you use to keep your friends updated with your life experiences, 4 being your most used method and 1 being your least used method.

\_\_\_\_\_ Facebook status updates.

\_\_\_\_\_ Posting on a friend's wall.

\_\_\_\_\_ Posting photos in an album on Facebook.

\_\_\_\_\_ Sending private messages to my friends on Facebook.

Please choose how you feel about the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Facebook helps me to better understand the backgrounds of my friends.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning about my friends likes, dislikes, and activities through Facebook helps me to feel like I know them better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facebook helps me to express my interests to others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have second thoughts about posting something humorous on Facebook as a status.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have second thoughts about posting something humorous on a friend's Facebook wall.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Being included in a group on Facebook makes me feel closer to the other members of that group.	○	○	○	○	○
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Which of the following types of Facebook interactions make you feel closer to a friend? Please select all that apply.

- Posting a status.
- Liking a friend's status.
- Commenting on a friend's status.
- Posting a picture
- Sharing a friend's picture.
- Liking a friend's picture.
- Commenting on a friend's picture.
- Sending private messages with a friend.
- Sharing an article with a friend.
- Playing a Facebook game.
- Poking a friend.
- Writing a personal message on a friend's wall.
- Commenting on a wall post with a friend.
- Liking a wall post.
- A friend writing on your Facebook wall.
- A friend liking your status or picture.
- A friend commenting on your status or picture.

Please choose how you feel about the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I always post funny things to my friends' walls.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I always post funny things as my status.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am comfortable joking with my friends on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can tell how my friends are feeling by what they post as a status on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can determine what mood my friends are in by what they post on my Facebook wall.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I can determine what mood my friends are in by what they write to me in a private message.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Please select which of the following you would feel comfortable doing to a friend that you have not spoken to in awhile. Please select all that apply.

- Posting on that friend's Facebook wall.
- Tagging that friend in a Facebook post.
- Poking that friend on Facebook.
- Sending that friend a private message on Facebook.
- I would not feel comfortable doing any of the above.

Please choose how you feel about the following statements

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Facebook messenger is a good forum for resolving differences in opinion.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I post an opinion that a friend does not agree with as a Facebook status, we can discuss this issue freely through comments on that status.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If my friend posts an opinion I do not agree with as a Facebook status, I feel comfortable discussing this issue freely through comments on that status.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If I post something on a friend's wall they do not agree with, we can discuss that freely through comments on that post.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Please choose how you feel about the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
My friends frequently post positive comments on the pictures I post on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends frequently like my statuses on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends post on my wall as much as I post on their walls.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a friend posts something on my wall that I do not agree with, I feel comfortable discussing the issue through comments on that post.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please choose how you feel about the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I feel comfortable posting or sharing things with my friends on their Facebook walls.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable sending a private message to friends on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I post something on Facebook, I know that my friends will not judge me for what I am posting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel accepted when I am included in a group on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facebook interactions have helped me feel more accepted by my friends.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I feel most accepted by my friends on Facebook when they...

- Like a picture that I have posted.
- Like a picture that I have been tagged in.
- Tag me in a picture.
- Like my status.
- Comment on my status.
- Write a post on my wall.
- Share a link with me.
- Tag me in a status.
- Other (please explain): \_\_\_\_\_

Has Facebook made your relationships stronger?

- Yes
- No
- I don't know

Which of the following friendship making skills do you believe Facebook has increased for you?

You may choose all that apply.

- Turntaking
- Making small talk
- Initiating a conversation
- Continuing a conversation
- Knowing when a conversation is over
- Ending a conversation appropriately
- Asking questions about your partner
- Asking appropriate follow up questions
- None
- Other \_\_\_\_\_

Please choose how you feel about the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
My friends correct me if I post something inaccurate on Facebook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends will respond to a status asking for their help in solving a problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends will respond to a private message asking for their help in solving a problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends will respond if I post on their wall asking for their help in solving a problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I could help a friend on Facebook if they asked me to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Facebook interactions have shown me how I can be a better friend to others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Have you ever met someone through Facebook and became friends (as explained in the definition earlier) with them?

- Yes
- No

The following statements compare the friends you have made because of Facebook and friends you have made outside of Facebook. Please choose who you feel best fits the following

statements. If the statement applies to both types of friends please choose both or if the statement applies to neither type of friend choose neither.

	A friend(s) made outside of Facebook	A friend(s) made through Facebook	Both	Neither
I could call this friend in the middle of the night with a problem, and they would answer the phone and talk to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would answer the phone in the middle of the night if this friend called me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can remember times when this friend has helped me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to help this type of friend whenever possible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I told this friend I was in trouble, they would help me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please provide your email address if you would be interested in participating in other research studies at Penn State.

Thank you for participating in this survey.

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## ACADEMIC VITA

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### EDUCATION

**The Pennsylvania State University**, State College, PA

Bachelor of Science in Communication Sciences and Disorders, expected May 2014

Thesis Title: Perspectives of College-Aged Individuals Without Autism on Facebook Friendships  
Based on Four Qualities of Friendships

#### **RELATED COURSEWORK:**

Introduction to Communication Sciences and Disorders

Introduction to Audiology

Deaf Culture

Developmental Conditions in the Assessment and Treatment of Language Disorders

Acoustic Principles in Communication Sciences and Disorders

Clinical Phonetics

Anatomy and Physiology for Speech and Hearing

Aural Rehabilitation

Introduction to Disorders of Articulation and Phonological Disorders

An Introduction to Augmentative and Alternative Communication

Principles of Clinical Management in Communication Disorders

Clinical Bases of Language Disorders

American Sign Language I (Intended Spring 2015)

Introduction to Teaching English to English Language Learners

#### **OTHER COURSEWORK:**

Experimental Chemistry I Learning and Instruction

Calculus with Analytical Geometry I Foundations of Linguistics Introductory Psychology

**University of New South Wales**, Sydney, Australia

*Spring 2014*

**Rock Valley College**, Rockford, Illinois

*Summer 2012*

### WORK EXPERIENCE

**Therapeutic Recreation at The Rockford Park District**

*Program Assistant*

*Summers 2013-2014*

### HONORS AND ACHIEVEMENTS

**Dean's List**

*Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2014*

**National Society of Collegiate Scholars**

*Fall 2012 – Spring 2015*

**Health and Human Development Honors Society**

*Fall 2013, Fall 2014, Spring 2015*

CAMPUS LEADERSHIP

**National Student Speech Language and Hearing Association, Penn State Chapter**

*Treasurer*

*Fall 2014-Spring 2015*

**Penn State Newman Catholic Student Association**

*THON Chair*

*Fall 2014-Spring 2015*

*Publicist*

*Fall 2012 – Spring 2013*

**Life Link PSU, Mentor**

*Fall 2013*

**Human Development and Family Studies Department, Penn State**

*Teaching Assistant*

*Spring 2013*

**Penn State Homecoming, Security Leader**

*Fall 2012*

**Leaders Emerging Today, Participant**

*Fall 2011*