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A COMPARISON OF FACEBOOK FRIENDSHIP QUALITY BETWEEN COLLEGE-AGED
INDIVIDUALS WITH AND WITHOUT AUTISM SPECTRUM DISORDER

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ABSTRACT

High-quality friendships are crucial aspects of development and well-being across the lifespan. In recent years, social media sites, such as Facebook, have allowed for new channels of communication and interaction between friends. Previous studies have reported individuals with Autism Spectrum Disorders (ASD) have deficits in friendship maintenance and social communication (Bauminger & Kasari, 2000). Additionally, individuals with ASD participate in social interactions on social media sites, yet still struggle to connect with friends on social media (Orsmond & Kuo, 2011). The purpose of this study was to compare the perceived quality of friendships carried out on Facebook by neurotypically developing young adults with those of young adults with ASD. The validated Friendship Quality was used to define friendship quality and was adapted to be applicable to Facebook. The results of an online survey were used to compare the responses of 134 young adults between the ages of 18 and 24 with ASD to those of 258 young adults between the ages of 18 and 24 who were neurotypically developing. The results indicated statistically different responses regarding participants' beliefs about interactions within Facebook groups and private Facebook messages. While results indicated young adults with ASD feel closer to other members of Facebook groups, the two samples felt similarly that membership in a Facebook group led to increased feelings of acceptance. Results also indicated that young adults with ASD do not feel comfortable sending private messages to friends, and struggle to perceive the mood of a friend over private Facebook messages.

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Chapter 1

Introduction

Friendships

Peer relationships and friendships have a significant role in development across the lifespan, and play an additionally crucial role in the lives of young adults ages 18-24 as they enter into emerging adulthood. In their study of friendship across the lifespan, Hartrup and Stevens (1997) reported regardless age, friends and social relationships are sources of support, intimacy, trust, loyalty and fun. Further, the combination of these factors make friendship a "protective" feature as one faces life challenges. Because of this, these researchers asserted friendships are developmentally significant and offer cognitive and affective resources necessary for healthy adjustment to each life stage. In support of this, Tipton, Christensen and Blacher (2012) reported a positive correlation between successful peer relationships and later perception of self-worth and adjustment. Further, the results indicated friendships are not only a necessary resource at each stage of life, but also each member of the friendship benefits positively. Berndt's 2002 study on the quality of friendship and its relation to social development showed good friendships (where pro-social behavior was present and where there was support, loyalty and intimacy) were correlated with generally higher self-esteem in children and greater success in the social world, and enhanced physical and mental health in adults.

While research has shown friendships are crucial for development at any point in the lifespan, friendships are especially important for emerging adults ages 18-24. In this stage of

development, young adults are facing major life transitions, such as going to college, finding a job and living on their own. Support during these various transitions appears to come from friends, for the most part, rather than familial relationships (Tokuno, 1986). In their study of adjustment of first year college students, Buote, Pancer and Pratt (2007) reported friendships were a strong indicator of well-being. This research indicated friendship quality was an indicator of positive adjustment to the university life in general as well as the social settings of college and emerging adulthood. Buote et. al also stated friends provided a sense of belonging and gave assistance, support and advice, which were critical components of navigating the transition to college. Transitioning to and from college is one of the most significant changes young adults will face, and friendships have proven to be a key component of being successful in this transition.

Not only are friendships critical for this transition, but like all other social relationships throughout the course of life, friendships in emerging adulthood provide individuals with important resources. Mendelson and Aboud (1999) reported college students with a long term best friend had higher self esteem, and felt close to and satisfied by their best friend. These best friendships provided stimulating companionship, help, intimacy, reliable alliances, self-validation and emotional security. These factors were found to be correlated with positive feelings and satisfaction in life in the participants of the study.

In response to the vast body of research indicating friendship quality is important to overall perceptions of quality of life, Thien, Razak, and Jamil (2012) developed the Friendship Quality Scale, to evaluate the quality of friendships scientifically. The scale is based on four dimensions: closeness, help, acceptance, sand safety. These dimensions were empirically validated as those that signify the features of a high quality friendship. By combining previous

research on friendship quality with a pilot scale, Thien, Razak, and Jamil determined the reliability of these four factors in classifying friendship quality. Following the pilot, the researchers created a multidimensional construct Friendship Quality Scale that was validated both qualitatively and quantitatively, and has been used as the basis for many research projects, including the current project.

Social Media - Facebook

Friendship is important across the lifespan, and the methods by which friends interact and communicate shift over time as technology changes and improves. The introduction of social media has brought about a new facet of social interaction and communication, and has enhanced the way friendships are carried out in face-to-face interactions (Ellison et. al, 2007).

Social media, particularly Facebook, has been growing in popularity. Between 2008 and 2011, the number of people using social networking sites (SNS) nearly doubled, and of those who are using SNS, 92% of them had a Facebook account or profile (Pew Research Center, 2011). The Pew Research Center later reported in their 2014 Social Media Update Survey that 71% of the total number of internet users were on Facebook. For those internet users who used multiple sites, Facebook was deemed the "home base", as it was the most popular site amongst those who used multiple social media platforms (Pew Research Center, 2014). Additionally, Facebook users remain actively engaged in the site, with over 70% of participants in the survey stating they used Facebook at least once a day, and 45% saying they use the site multiple times per day (Pew Research Center, 2014).

Friendships on Social Media

As Facebook and other social media avenues continue to grow in popularity across the general population, research has indicated the motivation for using such SNS is primarily to maintain friendships and other social relationships (Pew Research Center, 2011). For young adults, interpersonal communication has always been the primary motivation for using the internet: in 2001, Subrahmanyam, Greenfield, Kraut and Gross reported teens overwhelmingly felt e-mailing and chatting on the internet were more important than acquiring information on the internet. The sample of teenagers in this study stated they most enjoyed using the internet to keep up with both local and distant friends. In these friendships, electronic communication served to support pre-existing relationships that predated internet use (Subrahmanyam et. al, 2001). In recent years, the data presented in this research has remained intact - in 2011 the Pew Research Center reported the majority of SNS users under the age of 50 used SNS to upkeep existing friendships and reconnect with older, more distant friendships. Additionally, participants stated connecting with family members and friends was the primary reason they initially joined social media sites such as Facebook (Pew Research Center, 2011). Ellison, Steinfeld, and Lampe (2007) reported the participants in their study used Facebook significantly more for interactions with friends with whom they had an offline connection.

Intrinsic motivators are an additional motivation for using social media sites, specifically Facebook. Nadkarni and Hofmann (2012) reported the primary motivation for using Facebook was a combination of two basic social needs: the need to belong, and the need for self-preservation. The increased feelings of belonging and self-preservation provided by Facebook reportedly reduced levels of loneliness, facilitated relationship development, and provided a greater sense of acceptance by peers.

Facebook usage presents an environment where rich, deep friendships can be fostered. Elder (2014) applied Aristotle's definition of the most satisfying friendships to analyze Facebook. Results of this analysis indicated people were able to sustain intimate, deep and true friendships via Facebook. These results were contradictory to previously published research suggesting it was not possible for friendships formed or maintained online to be as satisfying or fulfilling as those conducted in person (Cocking & Matthews 2000, McFall 2012). Specifically, the work of Elder (2014) explained the range of communicative interactions possible on Facebook facilitated the sharing of life necessary for the virtuous and true friendship defined by Aristotle. Actions like conversing on a political topic, sending private messages, sharing music or videos, and/or finding out about other's interests via Facebook can foster the maintenance of friendships more effectively than previously believed.

The ability to conduct satisfying and meaningful friendships on Facebook allows the user to benefit socially from these relationships. Ellison, Steinfeld, and Lampe (2007) defined such benefits of friendships as "social capital", of which there are two types: bridging and bonding. Bridging social capital allows an individual to make more connections and expand their social network. Bonding social capital allows an individual to solidify and deepen existing friendships. The results of Ellison, Steinfeld and Lampe's study indicated participants who used Facebook more intensely reported a robust increase in both bridging and bonding social capital. According to Ellison et. al (2007), both forms of social capital can be created and maintained via Facebook interactions. Results of this study indicated Facebook use positively affected the transition to college for the participants, which further resulted in increased self-esteem and overall life satisfaction (Ellison et. al, 2007).

In summary, Facebook use is on the rise across the overall population, and continues to be the most popular form of social media. Friendships built and maintained on Facebook are primarily extensions of offline friendships, and users are motivated to interact with friends on Facebook in order to satisfy the social need to belong. Such friendships benefit users and impact them in a positive way.

Autism Spectrum Disorder

Friendships formed and maintained over Facebook benefit users and are becoming more common (Pew Research Center, 2011). However, the social and communicative skills needed to participate in such friendships may be lacking in individuals with Autism Spectrum Disorder. An ASD diagnosis is made based on the definitions and diagnoses set forth in the DSM-V (APA, 2013). Individuals with ASD experience difficulties with communication in social settings, have deficits in social participation, social relationships, social-emotional reciprocity, non-verbal communication, and also demonstrate restricted and repetitive patterns of behavior or interests. Currently, the prevalence of ASD among the general population is around 1 in 68 children, and boys are four times as likely to receive an ASD diagnosis than their female counterparts (National Institute of Mental Health, n.d.)

Because ASD is a broad spectrum of disorders, the manifestation of the disorder looks different for each individual. There are a wide range of skills, levels of impairment, and levels of disability associated with an ASD diagnosis (National Institute of Mental Health, n.d.). Deficits in social communication are of particular because of the impact on several contexts of social functioning. Individuals with ASD generally struggle with social relationships, participation,

making and maintaining friendships, and effective communication, which has a profound impact on social functioning as a whole (Orsmond, Krauss, & Seltzer, 2004). Individuals with ASD particularly have difficulty following conversational rules, understanding what is not explicitly stated, matching the context of their social setting, understanding others emotions, and using proper non-verbal signals during interactions with those around them (APA, 2013). Orsmond & Kuo (2011) reported young adults with ASD spend most of their time in solitary activities and very little time interacting with friends or relatives. These researchers suggested this solitary time was replacing the time neurotypically-developing (NT) counterparts were spending with their peers.

The combination of social communication deficits and lack of social interaction lead to difficulty constructing meaningful high quality friendships for individuals with ASD (Petrina et. al, 2014). The deficits individuals with ASD face in making and maintaining friendships are significant due to the important role that friends play in the life of any individual across the lifespan (Tokuno, 1986). Friendships within emerging adulthood, in particular, are valuable resources and indicators of future positive outcomes (Buote et. al, 2007).

According to Orsmond, Krauss and Seltzer (2004), only 8% of individuals with ASD reported at least one friendship where the partner was mutually engaged in the relationship and of a similar age as the individual with ASD. Additionally, nearly half of the sample taken by Orsmond, Krauss and Seltzer stated they had no mutual peer relationships. Orsmond, Krauss and Seltzer (2007) concluded young adults on the autism spectrum struggle immensely to make and maintain friendships, and this deficit persists well into adulthood (Petrina et. al, 2014). More recent research suggests that 89% of friendships within the ASD population are reciprocated, yet individuals with ASD still perceive their friendships as lower quality (Petrina et. al, 2016).

A lack of high quality social relationships and difficulty creating and maintaining friendships can have a significant impact on the well-being of individuals with ASD (Bauminger & Kasari, 2000). Bauminger and Kasari (2000) compared high functioning children with ASD and their neurotypically developing peers, and found children with ASD did indeed report having friends; almost all of the children in the sample reported having a best friend. However, the data revealed the qualities of these friendships were much lower than those of the NT sample, and the children in the ASD sample felt lonely, despite the presence of friends.

Social Media in the ASD Population

Social media-facilitated friendships are an important aspect of modern day relationships in the general population (Elder, 2014; Niland et. al, 2015). It is currently unknown, however, whether or not social media is an important part of relationships in the population of young adults and adults with an ASD diagnosis. It is possible social media may provide a channel of communication that will allow an individual with ASD to overcome challenges with social communication and maintaining friendships (Mazurek 2013). Mazurek and Wenstrup (2013) reported individuals with ASD, as compared with their siblings who are typically developing, preferred screen-based interactions over face to face interactions, which may extend to social media. According to Mazurek, the social anxiety and communicative difficulties faced by individuals with ASD may be lessened by the presence of a screen, and therefore online communication (via Facebook and other social media sites) could facilitate social engagement between individuals with ASD and their peers (2013). Indeed, Mazurek (2013) reported those

individuals with ASD who did use social media to interact with peers were more likely to have a

best friend than those who did not (66.3% as compared with 33.3%).

While screen-based interactions may be preferred by individuals with ASD, research

indicates individuals with ASD are still not interacting with others online to the same extent as

their peers without ASD. Mazurek and Wenstrup found children with ASD preferred to play

video games, similar to their peers, but they wanted to play video games individually rather than

with peers (2013). In the same study, Mazurek and Wenstrup found children and young adults

with ASD spent very little time on social media, despite a preference for screen-based

interactions. In an earlier study, Mazurek, Shattuck and Wagner (2012) found young adults with

ASD had lower rates of engagement with social media and email, and many (64.4%) did not use

email or social media at all. These results are surprising, considering the preference for and

comfort with screen-based technology seen in young adults with ASD. Due to this preference,

social difficulties might be lessened in online or screen-based social interactions. In particular,

the results of Mazurek et. al, (2012) are relevant to this research, which seeks to define how

individuals with ASD may use Facebook to make and maintain friendships compared to their

neurotypically developing counterparts.

Research Question and Hypothesis

Motivated by previous research related to friendship quality on social media and

friendships in the ASD population, this research answered the question: "How do individuals

with ASD use Facebook to make and maintain friendships?" It was hypothesized the nature of

Facebook friendships in the ASD population would differ significantly from the quality or nature

of Facebook friendships of their peers without ASD. The aim of this study was to get a clearer

picture of the nature and quality of online friendships of those with ASD, in order to understand

how Facebook and other social media sites can be used to benefit and strengthen social

interactions to support the maintenance of fulfilling friendships.

      To address the research question, an online survey was developed and administered to

young adults ages 18-24 with and without ASD who had Facebook profiles. The survey items

were based on and adapted from the Friendship Quality Scale (see Appendix A).

Chapter 2

Method

Participants

Young adults ages 18-24 both with and without (also referred to as neurotypically developing or NT) an ASD diagnosis made up the sample of respondents for this research. The sample of NT young adults was comprised of 306 young adults within the desired age range, and the sample of young adults with an ASD diagnosis consisted of 176 young adults within the desired age range. Each of the participants was required to have a Facebook account, and any participant without a Facebook account was thanked for their time, but was unable to continue participating in the survey. In order to participate in the survey, each participant was required to provide informed consent.

Recruitment

The sample of NT young adults was recruited primarily though Facebook posts. The recruitment message included information about the purpose of the survey, the details of the survey, and a link to complete the online survey. A portion of the sample of NT young adults was also recruited through an extra credit opportunity undergraduate class at Penn State (Cerutti, 2015). The sample of young adults with an ASD diagnosis was recruited in three ways: Facebook posts similar to those used to recruit the NT sample, e-mailing of young adults with

ASD or their parents who had previously participated in research at Penn State, and through the

Interactive Autism Network (IAN). The IAN is an online network established by the Kennedy

Krieger Institute comprised of individuals with an ASD diagnosis and their families. The IAN

assists researchers by providing an online database of individuals who may be willing and

qualified to participate in research related to ASD. Through IAN, young adults with an ASD

diagnosis and parents of young adults with an ASD diagnosis were contacted via e-mail and

offered incentive in the form of a $10 Amazon giftcard for completing the survey, per IAN

requirements. Before any data were collected from this survey, approval was obtained from the

Institutional Review Board (IRB).

Procedure

The use of an online survey was determined to be the most efficient way to gather a large

enough sample of both young adults without an ASD diagnosis and a sample of young adults

with an ASD diagnosis. An online survey can be shared quickly and easily and is not bound by

geographic location. Sharing a survey online means the sample reached would be relatively

diverse with respect to race and gender, though it may bias against those who do not have easy

access to the internet. Young adults who were active on Facebook would potentially be more

motivated to participate in an online survey since they are active online in other ways. Two

online surveys were used: one for the sample for young adults with and ASD diagnosis, and one

for the young adults without an ASD diagnosis. The two online surveys were identical so the

data from each could be compared, and the comparison would remain valid and a reliable

measure of any difference between the two samples.

The survey was comprised of six separate sections, one of which had a subsection to be completed only by the sample of young adults with an ASD diagnosis. The first section contained the purpose of the research study, information about research conducted at Penn State University, and a subsection where informed consent was required to move on throughout the rest of the survey. The remaining five sections included one section on general Facebook usage and four sections with questions based on four parameters of the Friendship Quality Scale that has been modified and adapted to relate to Facebook use.

The majority of the questions included in the survey were in the form of multiple choice, select all that apply, Likert scale questions, or matrix answers. Open-ended questions were limited to the demographic section in order to keep the data organized and brief. The survey was designed to be based on self-report, there was no time limit, and no back button. On average, the survey took 20-25 minutes to complete for the sample of young adults without an ASD diagnosis and approximately 30 minutes for the sample of young adults with an ASD diagnosis.

Demographic Information

Each of the 472 participants completed a demographic section that included questions on age, sex, academic standing, racial background, ethnicity, and the presence of an ASD diagnosis. If an ASD diagnosis was present, an additional subsection with relevant questions regarding the nature of the ASD diagnosis such as severity of the diagnosis, diagnostic procedure and the impact of the ASD diagnostic on the participant's life was completed. Individuals who did not indicate the presence of an ASD diagnosis did not complete the ASD subsection and were directed to the first section of Facebook usage questions.

Facebook Information

The following sections of the online survey were created based on modifications to the Friendship Quality Scale. These modifications related each item to Facebook friendships rather than in-person friendships. In order to modify each of the items on the Friendship Quality Scale, the researchers identified attributes of Facebook interaction that matched most closely with the in-person interactions used in the Friendship Quality Scale. Each item was modified, re-worded and re-structured to fit the context of Facebook for the online survey. Sometimes modifying items in the Friendship Quality Scale for application to Facebook interactions required writing additional to accurately portray the essence of the original question. For example, the statement "I understand my friends' mood" (Thein et. al, 2007) was modified to "I can determine what mood my friends are in by what they write to me in a private message" (see Appendix A). Other items were removed entirely due to their lack of potential connection with Facebook, such as "I feel safe when precious belongings are kept by my friends" (Thein et. al, 2007).

After each item had been modified and turned into a question, items were grouped into the same categories used in the Friendship Quality Scale: closeness, safety, help and acceptance. Participants were asked to answer questions about their Facebook usage patterns within each of the four Friendship Quality Scale parameters. Questions asked about the frequency and pattern of Facebook activity, preferences regarding Facebook use, and opinions surrounding Facebook friendships.

Data Preparation and Analysis

   The data were analyzed and compared after completion of the survey by the participants of both samples. Data were downloaded from the original format in Qualtrics ® survey software, duplicate responses were removed, and all assumptions for t-test statistical analysis were checked. Statistical analysis of the data was completed with the program SPSS version 22. Summary statistics were calculated to describe the distribution of all Likert scale questions. In order to determine whether a statistically significant difference was present between the response and independent variables from the two samples, an independent sample t-test was completed for each Likert scale question. Statistical significance was determined using a p-value of p=.05.

Chapter 3

Results

Participant Sample Sizes

A total of 176 individuals with ASD and 306 typically developing individuals participated in the survey, completed online through Qualtrics ® survey software. Surveys by participants who did not meet the inclusion criteria for this study, namely those completed by individuals who were not between the ages of 18 and 24 or by those who did not have a Facebook account, were excluded from the data analysis. Additionally, survey responses that contained missing data were also removed from the data analysis. After such data were removed, the sample sizes were as follows: 134 individuals with an ASD diagnosis, and 258 individuals who were neurotypically developing.

Respondent Demographics

All participants were required to provide demographic information including age, gender, racial background, level of education, living arrangements, and Facebook preferences. Those individuals who indicated an ASD diagnosis were also asked an additional set of demographic questions that provided information on their ASD diagnosis, including information on who made the diagnosis and how old the participant was when the diagnosis was made. Results for the demographic information can be found in Table 1.

Table 1. Gender and Age of Participants in Samples

	Male (Percent %)	Female (Percent %)	Mean Age (years)
Individuals with ASD (n=134)	66	34	20.93
Individuals who are NT (n=258)	16	84	21.43

Demographics for the ASD Sample

Participants with ASD ranged in age from 18 to 24 years. The average age among this sample was 20.9 years. Within the ASD sample, 66% of participants were male, while the remaining 34% were female. This high percentage of males is reflective of the overall population of individuals with ASD in the United States, where approximately five males receive an ASD diagnosis for every one female (National Institute of Mental Health, n.d.). Other demographic information was collected from the ASD sample, but was not necessary for the current analysis.

Demographics for the Neurotypically Developing Sample

Participants included in the neurotypically developing (NT) sample also had ages ranging from 18 to 24 years. Among this sample, the average age of the participants was found to be 21.4 years. Within the NT sample, 84% of participants were female, and the remaining 16% of participants were male. Other demographic information was collected from the NT sample, but was not necessary for the current analysis.

Facebook Friendships

The goal of this study was to compare how young adults in the NT and ASD populations

felt about their friendships on the social media platform of Facebook. Participants provided

answers to questions in four subsections that corresponded with the four parameters of friendship

described in the Friendship Quality Scale: safety, closeness, acceptance, and help. The following

two sections compare responses from the two samples with regards to two specific parameters of

the Friendship Quality Scale, closeness and acceptance (see Table 2). Within each parameter,

participants answered questions about their Facebook interactions in Facebook groups (public or

private pages where groups of three or more individuals interact, share content, etc.) and over

Facebook messages (individual, private communication with another Facebook user).

Table 2. T-Test Statistics for Facebook Friendship Interactions in Groups and Messages

Variable	Individuals with ASD		Individuals with NT Development		t-test	
	M	SD	M	SD	P	t
Group closeness	3.32	1.14	2.95	1.06	0.004	-2.94
Group acceptance	3.55	0.96	3.42	0.84	0.238	-1.18
Message closeness	3.36	1.09	3.94	0.74	0.000	5.70
Message acceptance	3.78	1.14	4.33	0.61	0.000	5.58

Note. M= Mean. SD= Standard Deviation

Differences in Facebook Group Interactions in Individuals with and without ASD

Participants were asked a variety of questions regarding their interactions within

Facebook groups. Several questions within this category were Likert scale questions that asked

respondents to rate how much they agreed with a statement by selecting one of the following answers: strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree. All Likert questions regarding Facebook groups included a standard carrier phrase: "Please choose how you feel about the following statements:". This carrier phrase was followed by several statements that discussed various aspects of feeling accepted and close within Facebook group interactions. Among a variety of statements, participants were specifically asked to rate whether they agreed with the following two statements: "Being included in a group on Facebook makes me feel closer to the other members of that group" (closeness) and "I feel accepted when I am included in a group on Facebook" (acceptance) (See Appendix A).

Independent-sample t-test were conducted for each of these Likert scale questions to compare the answers given by the sample of young adults with ASD and the sample of young adults without ASD. A statistically significant difference was found between the two samples with regard to whether inclusion in a Facebook group made the participants feel as if they were closer to the other members of the group (group closeness). This suggested the two groups felt differently about whether inclusion in a Facebook group presumes feeling close to other members of the group (ASD: M= 3.32, SD= 1.14, NT: M=2.95, SD= 1.06; $t(326)= -2.94$, p=0.004). In contrast, there was no statistically significant difference between the two samples with regard to whether participants felt they were accepted when included in a group on Facebook (group acceptance). This suggested the two groups felt similarly about whether inclusion in a Facebook group presumes feeling accepted by the members of that group (ASD: M=3.55, SD= 0.96, NT: M= 3.42, SD= 0.84; $t(312)= -1.18$, p=0.238).

Differences in Facebook Private Message Interactions in Individuals with and without ASD

In addition to responding to questions about Facebook groups, participants were asked to respond to questions regarding their interactions with friends in the Facebook Messenger feature, which allows users to communicate with other users on an individual and private level. Multiple questions within this category were Likert scale questions to which participants could respond that they either strongly disagreed, disagreed, neither agreed nor disagreed, agreed, or strongly agreed. The Likert questions in this section also included a carrier phrase: "Please choose how you feel about the following statements:". The carrier statement was followed by statements that related to aspects of feeling close and accepted by friends within Messenger interactions. Among a variety of statements, participants specifically responded to the following two statements: "I feel comfortable sending a private message to friends on Facebook" and "I can determine what mood my friends are in by what they write to me in a private message." These two questions reflected the acceptance and closeness parameters of friendship, respectively.

Independent-sample t-tests were conducted for the two Likert scale questions discussed above in order to compare the answers given by the sample of participants with ASD and those who were neurotypically developing. A statistically significant difference was found between the two samples when asked to respond to the question of whether participants felt comfortable sending a private message to Facebook friends (message acceptance). This suggested the sample of young adults with ASD felt differently about whether or not they were comfortable sending their peers a private Facebook message than did their neurotypically developing counterparts (ASD: M= 3.78, SD= 1.14, NT: M= 4.33, SD= 0.61; t(312)= 5.58, p=0.000). Additionally, a statistically significant difference was found between the two samples when asked to respond to the question of whether or not participants could determine the mood of a friend when

interacting with said friend in a Facebook message (message closeness). This suggested the sample of participants with ASD delft differently about their ability to perceive the mood of a peer in a private Facebook message than did their neurotypically developing peers (ASD: M= 3.36, SD=1.09, NT: M= 3.94, SD= 0.74; t(322)= 5.70, p= 0.000).

Chapter 4

Discussion

The purpose of this study was to explore how individuals with ASD use Facebook to make and maintain friendships, with a focus on two of the four parameters of friendship defined by the Friendship Quality Scale (Thein et. al, 2012). Researchers focused specifically on the parameters of closeness and acceptance as they related to Facebook interactions in both Facebook groups and in individual, private message on Facebook. The following section will discuss the statistical results and implications of the study, implications for clinical practice within the field of speech-language pathology, limitations to the survey and research process, and recommendations and directions for potential future research.

Results of the Current Study

The results of this study suggested young adults with ASD perceived their interactions with peers in Facebook groups similarly to their neurotypically developing peers in certain aspects of friendship, but in other aspects perceived their interactions in Facebook groups differently from their neurotypically developing peers. The two samples responded in a significantly different way when asked if inclusion in a Facebook group made them feel closer to members of that group. A higher percentage (46%) of young adults with ASD stated being included in a group on Facebook made them feel closer to other members of the group in some

capacity, which is consistent with Mazurek's (2013) findings that individuals with ASD who interact with peers on Facebook felt closer to those friends. Only 36% of the neurotypically developing population felt the same. Additionally, the majority of neurotypically developing young adults (56%) felt either neutral or disagreed with the statement that being included in a group on Facebook helped them to feel closer to their peers.

While NT and ASD young adults felt differently about whether inclusion in a Facebook group helped them to feel closer to members of the group, both samples felt being included in a group on Facebook made them feel more accepted by the members of that group. When asked whether they agreed with the above statement, 51% of young adults with ASD agreed in some capacity (either agreed or strongly agreed) and 59% of neurotypically developing young adults agreed in some capacity. These findings suggested when young adults are interacting in Facebook groups, both groups felt more accepted by members of the group, but only the sample of young adults with ASD felt as if they were closer to other members of that group.

These findings suggested young adults with ASD felt slightly more inclined to say they felt closer to members of a Facebook group, whereas neurotypically developing young adults were less likely to say the same, and both samples felt more accepted when included in a Facebook group. Inclusion in a Facebook group was often preceded by a shared activity or interest between members of the group. According to Orsmond, Krauss and Seltzer (2004) and Howlin, Mawhood and Rutter (2000), only 20.9% of young adults with ASD had a friendship in which reciprocal interests were present, and only 32% of individuals with ASD had friendships where there was an undertaking of shared activities. The current data suggested young adults with ASD felt closer to and more accepted by members of a group on Facebook. Therefore Facebook groups may be an emerging means by which individuals with ASD can find peers with

similar interests and build the communicative and social skills necessary to make and maintain successful and meaningful friendships.

The results of this study also suggested young adults with ASD perceived their interactions with peers in private Facebook messages in a statistically different manor than their neurotypically developing peers. When participants were asked if they were able to determine a friend's mood by what they wrote in a private Facebook message, 47% of young adults agreed in some capacity that they could do so, where as 80% of neurotypically developing young adults felt they would be able to do so. Not only did significantly fewer young adults with ASD feel as if they would be able to determine the mood of a friend through a private message, the majority of the sample with ASD (51%) felt either neutral or disagreed with that statement. These findings suggested neurotypically young adults were much more confident in their ability to perceive the mood of a friend on Facebook than those young adults with ASD.

In addition to having significantly different results with respect to perceiving a friend's mood over Facebook message, the two samples of young adults also responded in a statistically different way to whether or not they felt comfortable sending a message to someone they considered a friend on Facebook. Ninety-six percent (96%) of neurotypically developing young adults either agreed or strongly agreed with the statement "I feel comfortable sending a private message to friends on Facebook", where as only 47% of young adults with ASD felt the same. This supports Attwood, Frith and Hermelin's (1988) findings that adolescents and young adults with ASD typically make fewer initiations with peers than do their neurotypically developing counterparts. Furthermore, only 1% of neurotypically developing young adults in this study disagreed with the above statement, implying that only 1% of NT young adults were uncomfortable sending a private message to a friend on Facebook. In contrast, 17% of young

adults with ASD disagreed with the above statement, implying that a significantly larger

proportion of young adults with ASD were uncomfortable sending a private message to friends

on Facebook. These findings suggested young adults with ASD felt less comfortable sending

private messages to their friends on Facebook than their neurotypically developing friends did,

despite the fact that this is a critical component of Facebook interactions with peers. Moreover,

when young adults with ASD did send private messages to their Facebook friends, they felt less

confident in their ability to perceive the mood of their friends than did their neurotypically

developing peers.

Clinical Implications

The results of this research have significant implications within the field of speech-

language pathology. Speech language pathologists (SLPs) often work closely with and provide

intervention to individuals across the lifespan who have an ASD diagnosis. Communication is at

the core of any friendship, and thus SLPs provide intervention to help support individuals with

ASD in their endeavors to navigate social settings and peer relationships. Due to the social-

pragmatic and communication deficits faced by most individuals with ASD (American

Psychiatric Association & American Psychiatric Association, 2013), SLPs work closely with

these individuals to help build pragmatic communication skills that foster the making and

maintenance of friendships.

As social media sites such as Facebook add a new facet to friendships and continue to

increase in popularity (Pew Research Center, 2014; Pew Research Center, 2011), SLPs need to

understand how NT young adults and those adults with ASD are using such platforms to make

and maintain friendships. Intervention provided by SLPs needs to adapt alongside the growing technological component to navigating friendships. Individuals with ASD prefer screen based media and electronic entertainment (Mazurek & Wenstrup, 2013), yet spend a minimal amount of time on screen based media actually engaging in social interactions with peers (Orsmond & Kuo, 2011). Despite the fact that online communication presents is a challenge for young adults with ASD, social media use is on the rise among that population (Mazurek, 2013). Therefore, young adults with ASD will require the social and pragmatic communication skills that allow them to navigate such platforms successfully.

The data from this study suggested young adults with ASD may be lacking the social-pragmatic skills and communication abilities to successfully interact with their peers on Facebook, particularly through private messages. The data also suggested young adults with ASD felt close to and accepted by the individuals with whom they share membership in a Facebook group. This is significant, and contrasts with Bauminger and Kasari's (2000) findings which suggested individuals with ASD felt more loneliness in friendships rather than closeness. The closeness found in Facebook groups for individuals with ASD may help to overcome the loneliness, and help individuals with ASD to build the satisfaction and positive self-esteem found in active Facebook users according to Ellison, Steinfeld and Lampe's study (2007).

This research study revealed potential intervention targets applicable to daily use for individuals with ASD. Within this intervention target, SLPs may need to focus on receptive communication skills required to successfully perceive the feelings or mood of a peer and understand written cues that may signify a change in meaning in online conversation. Additionally, SLPs may need to provide expressive language instruction on successfully initiating and maintaining communication in a private message on Facebook, which are skills

about which the NT population feels confident, but about which the population of young adults

with ASD does not. These skills may also benefit young adults with ASD as they continue to

navigate online friendships as a whole, as they may generalize to other online communications

and interactions.

Limitations

While interpreting the results of this research, several limitations should be taken into

consideration. Participants between the ages of 18 and 24 were included in the sample for this

research with the purpose of studying the young adults with and without ASD. However, with

increased use of the internet and social media sites, Facebook usage is becoming increasingly

popular across the lifespan (Pew Research Center, 2011). Because this data reflects a population

of young adults, it is not representative of the entire population of individuals with or without

ASD who are using Facebook. Therefore, these results cannot be generalized to individuals of

differing ages and at different points across the lifespan.

An additional limitation of the presented research can be found in the method used to

distribute the survey to the target population of young adults. For the neurotypically developing

population, the survey was posted to the Facebook accounts of two of the primary researchers in

this study. Both individuals were female young adults of similar ethnic and racial backgrounds

and of similar socio-economic status, attending the same university. This may have limited the

diversity and distribution of individuals who were Facebook "friends" with these researchers and

who therefore may have become part of the sample. This fact is exemplified by the statistic that

that eighty-four percent (84%) of those neurotypically developing individuals who participated

in the survey were female, which does not match the general population with regards to sex.

Additionally, limitations can be found with participant recruitment of the sample of

young adults with ASD. Individuals with ASD were primarily recruited through the Interactive

Autism Network, or IAN. In order to receive information and incentive for participating in the

survey, individuals with ASD must be registered with the organization and opt to participate in

research which applies to them. Members of IAN are provided with incentive to complete

research opportunities provided to them, whereas the neurotypically developing individuals who

participated in the survey were not offered any such compensation or incentive to participate and

complete the survey.

Finally, all data were collected through self-reported measures, which limited the ability

to clarify any questions or confusion of participants during the process of completing the survey.

Within self-reported data, there is also the potential for misreported data during data collection.

Survey results relied upon the ability of participants to provide accurate and truthful responses to

the survey questions, particularly any demographic questions that may have limited further

participation in the study (such as age or not having a Facebook profile).

Future Research

Future research is necessary to support the data reported here, and verify the Friendship

Quality Scale (Thein et. al, 2012) parameters of closeness and acceptance differ between the NT

and ASD populations in Facebook groups and private messages. In addition, research exploring

the methods by which both populations communicate and interact in Facebook groups and

messages is essential to bring a fuller understanding of why there are significant differences in how the populations feel about such interactions. This research is crucial to the development of intervention goals and techniques for SLPs working with individuals with ASD. Such research will support evidence-based practice and help clinicians to make more informed decisions and intervention goals.

Further analysis of the data not reported here, yet collected from this survey, is also necessary to understand differences and similarities between the NT and ASD populations with respect to their Facebook interactions. Further research is necessary regarding Facebook interactions and friendships of adults with ASD across other forms of Facebook interactions (such as wall-posts, comments, etc.), across all age groups, and across the spectrum of ASD diagnoses. This will bring a fuller understanding of the online social and pragmatic communication patterns of individuals with ASD, and how this differs from or is similar to those communication patterns of individuals who are neurotypically developing. Such research has the potential to lead to interventions that may assist in bridging the gap that individuals with ASD face when making and maintaining friendships, particularly those carried out online.

Summary

Individuals with ASD frequently struggle to make and maintain friendships, due to social and pragmatic communication deficits that impact such relationships in a negative way (Bauminger & Kasari, 2000, Orsmond, Krauss & Selzter, 2004). The results of this study suggested such social and pragmatic communication deficits may be manifested in online Facebook interactions as well, particularly in those interactions in Facebook messages and

groups. Significant differences were found between NT individuals and individuals with ASD when it came to such interactions, therefore necessitating further research to help support and strengthen online interactions of young adults with ASD in order to help equip such young adults with the best possible skills and environment for making and maintaining friendships on Facebook and other social media platforms.

Appendix A

Facebook Friendship Quality Survey for Young Adults With and 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

How old were you when you were diagnosed with ASD?

What is your specific ASD diagnosis?
○ Autistic Disorder
○ Asperger's Syndrome
○ Pervasive Developmental Disorder - Not Otherwise Specified
○ Rett's Disorder
○ Childhood Disintegrative Disorder

Who made your ASD diagnosis (e.g., physician, psychologist, psychiatrist, school team)?

Which diagnostic criteria were used to make your ASD diagnosis?
○ DSM-III
○ DSM-III-R
○ DSM-IV
○ DSM-IV-TR
○ DSM-V
○ Other _____

How would you classify your ASD characteristics?
○ Mild
○ Moderate
○ Severe

Please describe the characteristics associated with ASD that are affecting you most at the current time.

Compared to neurotypical peers (typically developing peers), which statement describes how you are personally affected by the following characteristics?

	Not affected	Mildly affected	Moderately affected	Severely affected
Language and Communication	○	○	○	○
Social Interaction	○	○	○	○
Restricted Interests and Behavior	○	○	○	○

Which communication modes do you use? Please check all that apply.
- ❑ Speech and/or vocalizations (e.g. words and/or word approximations)
- ❑ Sign language/system (e.g. American Sign Language, Signed Exact English)
- ❑ Gestures (e.g. conventional gestures: pointing, thumbs up; idiosyncratic gestures: unique movements that are understood by familiar people)
- ❑ Communication board or book (e.g. alphabet/picture board or book)
- ❑ Picture Exchange Communication System (PECS)
- ❑ Computer with speech output (e.g. computer that speaks when a message/picture is chosen)
- ❑ Tablet or smartphone (e.g. iPad, iPod, iPhone, Android)

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, someone who has your back, or 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.	○	○	○	○	○
I think every article my friends post on Facebook is factual without double checking.	○	○	○	○	○
My friends would never post something embarrassing about me on Facebook as a status.	○	○	○	○	○
My friends would never post a secret I shared with them on Facebook.	○	○	○	○	○
My friends would never post an embarrassing photo of me on Facebook.	○	○	○	○	○
My friends only post truthful things on my wall.	○	○	○	○	○

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.	○	○	○	○	○
I would inform my friends immediately if someone had posted something inappropriate on their Facebook page.	○	○	○	○	○
I would appreciate if a friend informed me that I had posted something inappropriate on Facebook.	○	○	○	○	○
I would appreciate if a friend informed me that I had posted something on Facebook that could get me into trouble.	○	○	○	○	○

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.	○	○	○	○	○

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.	○	○	○	○	○	○	○
Reaching out to a friend via Facebook message for advice.	○	○	○	○	○	○	○
Posting on a friend's wall to ask for advice.	○	○	○	○	○	○	○
Asking for advice on a group page.	○	○	○	○	○	○	○

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.	○	○	○	○	○
Learning about my friends likes, dislikes, and activities through Facebook helps me to feel like I know them better.	○	○	○	○	○
Facebook helps me to express my interests to others.	○	○	○	○	○
I have second thoughts about posting something humorous on Facebook as a status.	○	○	○	○	○
I have second thoughts about posting something humorous on a friend's Facebook wall.	○	○	○	○	○
Being included in a	○	○	○	○	○

group on Facebook makes me feel closer to the other members of that group.					

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.	○	○	○	○	○
I always post funny things as my status.	○	○	○	○	○
I am comfortable joking with my friends on Facebook.	○	○	○	○	○
I can tell how my friends are feeling by what they post as a status on Facebook.	○	○	○	○	○
I can determine what mood my friends are in by what they post on my Facebook wall.	○	○	○	○	○
I can determine what mood my friends are in by what they write to me in a private message.	○	○	○	○	○

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.	○	○	○	○	○
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.	○	○	○	○	○
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.	○	○	○	○	○
If I post something on a friend's wall they do not agree with, we can discuss that freely through	○	○	○	○	○

comments on that post.				

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.	○	○	○	○	○
My friends frequently like my statuses on Facebook.	○	○	○	○	○
My friends post on my wall as much as I post on their walls.	○	○	○	○	○
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.	○	○	○	○	○

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.	○	○	○	○	○
I feel comfortable sending a private message to friends on Facebook.	○	○	○	○	○
When I post something on Facebook, I know that my friends will not judge me for what I am posting.	○	○	○	○	○
I feel accepted when I am included in a group on Facebook.	○	○	○	○	○
Facebook interactions have helped me feel more accepted by my friends.	○	○	○	○	○

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.	❍	❍	❍	❍	❍
My friends will respond to a status asking for their help in solving a problem.	❍	❍	❍	❍	❍
My friends will respond to a private message asking for their help in solving a problem.	❍	❍	❍	❍	❍
My friends will respond if I post on their wall asking for their help in solving a problem.	❍	❍	❍	❍	❍
I feel like I could help a friend on Facebook if they asked me to.	❍	❍	❍	❍	❍
Facebook interactions have shown me how I can be a better	❍	❍	❍	❍	❍

friend to others.					

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.	○	○	○	○
I would answer the phone in the middle of the night if this friend called me.	○	○	○	○
I can remember times when this friend has helped me.	○	○	○	○
It is important to help this type of friend whenever possible.	○	○	○	○
If I told this friend I was in trouble, they would help me.	○	○	○	○

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

How did you find out about this survey?

Thank you for participating in this survey

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mixed dyads. *Journal of Autism and Developmental Disorders, 46*(4), 1334-1343. doi:10.1007/s10803-015-2673-5

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SAMANTHA A. LEBOLD

EDUCATION

High School Diploma with Distinguished Honors	**2012**
Bayard Rustin High School, West Chester, PA	

B.S. Communication Sciences and Disorders	**2016**
Pennsylvania State University, University Park, PA	
Schreyer Honors College	

AWARDS AND ACHIEVEMENTS

AP Scholar Award, *Bayard Rustin H.S.*   **2012**

Member of the National Honors Society, *Bayard Rustin H.S.*   **2012**

Schreyer Achievement Scholarship, *Schreyer Honors College
at the Pennsylvania State University, $4,000*   **2012 - 2016**

Dean's List, *Schreyer Honors College at the Pennsylvania State
University, GPA of 3.5 or higher*   **2012 - 2016**

Ruth Ann Tewksbury Scholarship, *College of Health and Human
Development at the Pennsylvania State University, $2,000*   **2012 - 2016**

C. Melville, Jr. and Kenneth Barr Alumni Memorial Scholarship,
*Schreyer Honors College at the Pennsylvania State University,
$1,500*   **2014 - 2016**

John T. and Paige S. Smith Scholarship, *College of Health and
Human Development at the Pennsylvania State University, $750*   **2015 - 2016**

RELATED EXPERIENCE, TEACHING, AND RESEARCH

Research Assistant   **2014 – 2016**
*Communication Sciences and Disorders Department,
Pennsylvania State University, University Park, PA
Supervisor: Dr. Erinn Finke, Ph.D CCC-SLP*
Provided input on and collaborated with Dr. Finke and other research
assistants to create a survey for individuals aged 18 to 24 both on and
off the Autism Spectrum. The aim of the survey was to gain insight

into the role of social media in making and maintaining friendships. Ran data analysis for the neuro-typically developing population and gathered data for the population of individuals on the Autism Spectrum. Completed *honors thesis* under Dr. Finke for the Schreyer Honors College at the Pennsylvania State University based on the original research which pioneered in the field of social media usage by individuals on the Autism Spectrum.

Teaching Assistant in "Mammalian Anatomy"   **2013 - 2016**
Biology Department, Pennsylvania State University, University Park, PA
Supervisor: Dr. John. Waters, Ph.D
Collaborated on curriculum development, developed all quiz and daily laboratory materials, lectured and instructed in the laboratory portion of the course, collaborated on and developed all exams for the course, graded all written work for the course including daily quizzes and all exams. Gained skills of time management, teaching experience, and leadership.

Observer   **2012 - 2016**
Speech and Hearing Clinic, Pennsylvania State University, University Park, PA
Completed the observation hours required by the American Speech-Language Hearing Association at the Pennsylvania State University Speech and Hearing Clinic. Observed children and adults with a variety of speech and language delays and impairments, including articulation and phonological disorders, secondary impairments as a result of traumatic brain injury, and developmental delays.

Nursery Attendant   **2014 – 2016**
First Presbyterian Church of West Chester, West Chester, PA
Cared for and attended to populations of children ages birth to 3 years who were both neuro-typically developing and those with developmental delays and disabilities, including Autism Spectrum Disorder, speech and language disorders, deafness, down syndrome and learning disabilities.

LEADERSHIP

Member of the Scholar Advancement Team   **2012 - 2014**
Pennsylvania State University, University Park, PA
Served as a liaison for the Schreyer Honors College between the
honors college and donors, alumni and the student body. Gained
networking and leadership skills important for a future profession in
Speech-Language Pathology.

**Penn State Dance Marathon Philanthropist Cru THON
Chair**   **2014 - 2016**
Pennsylvania State University, University Park, PA
Worked as the leader of an independent organization at Penn State to
raise money for the philanthropy THON. Organized donations,
fundraisers, member participation, and merchandise orders. Gained
organizational skills in addition to experience with corporate
connections, team building, and interpersonal communication skills
needed for graduate studies and beyond.

PUBLICATIONS AND PAPERS

Honors Thesis for the Schreyer Honors College   **2016**
The Pennsylvania State University, University Park, PA
*"A Comparison of Facebook Friendship Quality Between College-
Aged Individuals With and Without Autism Spectrum Disorder Based
Upon the Four Qualities of Friendship"*
Honors Thesis presented as graduation requirement for Schreyer
Honors College, Pennsylvania State University, University Park, PA

MEMBERSHIPS

Schreyer Honors College at the Pennsylvania State University   **2012 - 2016**
The Schreyer Honors College is a nationally recognized institute
within the Pennsylvania State University known for prestigious
entrance and rigorous academic standards. The Schreyer Honors
College at Penn State holds scholars to an academic standard
within the top ten percent of the University's standings (a GPA of
3.4 or higher, both standing and cumulative), in addition to
requiring all scholars to present academic plans and honors theses.
The Schreyer Honors College also strives to provide students with
a well-rounded global and multicultural experience through

mandatory study abroad programs and multi-cultural semester-based seminars.

National Student Speech Language Hearing Association   2013 - 2016
  Membership granted to those students willing to make a
  dedication and commitment to the study of Communication
  Disorders at the undergraduate level. Membership includes dues
  and entrance fees, attendance at programs and seminars for
  furthering education, and a commitment to local community
  service.

Phi Kappa Phi National Honors Fraternity   2015 - 2016
  Phi Kappa Phi is a nationally recognized honors fraternity
  dedicated to academic excellence. Membership granted to those
  who prove academic excellence through maintaining a GPA
  ranking in the top 7% of their undergraduate University standings
  in the junior and senior classes.

Penn State Blue and While Society   2012 - 2016
  Membership granted to those students at the Pennsylvania State
  University dedicated to pride in a strong academic program and a
  well-rounded university, who maintain a standard GPA and
  contribute dues each year, in order to participate in University-
  sanctioned events focused on the betterment of the student body
  as a whole.

<u>AREAS OF INTEREST AND POTENTIAL FOCUS FOR GRADUATE STUDIES</u>
  Swallowing and Sucking in Premature Infants
  Autism Spectrum Disorder
  Anatomy of Speech and Hearing
  Bilingual Language Development and Multicultural Studies
  Medical Speech-Language Pathology for Victims of Stroke and
  Traumatic Brain Injury

<u>REFERENCES</u>
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    401E Ford Building, University Park, PA 16802

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