The Effects of Priming on College Students' Attitudes Towards Individuals with Autism Spectrum Disorders



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THE EFFECTS OF PRIMING ON COLLEGE STUDENTS' ATTITUDES TOWARDS INDIVIDUALS WITH AUTISM SPECTRUM DISORDERS

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Abstract

There is little research that addresses peoples' attitudes towards individuals with autism spectrum disorders (ASD) and there is even less research on the effects of priming on these attitudes. The present study examined the effects of priming on college students' attitudes towards individuals with ASD. Fifty-seven undergraduate students attending Allegheny College participated in the study and were randomly assigned to one of three conditions: a positive prime condition, negative prime condition, or a control condition. Each condition contained a scenario that differed in how an individual with ASD was behaving. Participants read one of three scenarios that corresponded with the priming group to which they were randomly assigned. After reading their corresponding scenario, the Societal Attitudes Towards Autism Scale (SATA) was used to assess participants' attitudes towards individuals with ASD. Results found no effect of priming condition and therefore none of the hypotheses were confirmed. Limitations of the study and topics of future research are discussed.

The Effects of Priming on College Students' Attitudes Towards Individuals with Autism Spectrum Disorders

The current study assesses the effects of positive and negative priming on college students' attitudes towards individuals with autism spectrum disorders (ASD). Examination of previous research supports the importance of a study focusing on attitudes towards individuals with autism. People with autism face many social challenges, especially in the areas of communication and interpersonal relationships, and peoples' attitudes towards them can affect how well they manage these social challenges (American Psychiatric Association, 2013).

Attitudes Towards In-Groups and Out-Groups

An attitude can generally be defined as a tendency that assesses a certain entity (a person, idea or thing) positive or negatively (Eagly & Chaiken, 2007). Attitudes are not tangible items; they are inside a person's mind and are only observable when illustrated by an individual's response towards something (Eagly & Chaiken, 2007). Therefore, attitudes typically determine how people react or respond toward a certain entity. Attitudes frequently manifest themselves as stereotypes, which can be defined as beliefs that generalize groups of people or things (Kanahara, 2006).

An in-group can generally be defined as a group with which a person identifies and belongs (Crisp & Nicel, 2004). Those not belonging to a particular in-group are seen by in-group members as belonging to an out-group (Crisp & Nicel, 2004). In-group members tend to view fellow members positively and are typically sympathetic, accepting, and affectionate to one another (Crisp & Nicel, 2004). Typically, members of in-groups hold negative beliefs and have negative attitudes towards people in out-groups with whom they do not identify (Crisp & Nicel, 2004).

Attitudes are an important area of research in psychology because they are often a predictor of an individual's actions (Holland, Verplanken, & Knippenberg, 2002; Jankey, Próspero, & Fawson, 2011). Therefore, it is important to study attitudes towards out-groups because it can predict how members of in-groups will behave towards, or interact with, individuals who are not in-group members. Negative attitudes towards out-group members can affect the kind of stereotypes that are created and maintained about them (Dudley & Mulvey, 2009). In addition, attitudes towards out-group members can affect how they think and feel about themselves and the world around them (Jankey et al., 2011). Attitudes towards out-groups also can predict whether they will be accepted or rejected in society as well as the amount of opportunities they will have for equality and justice (Dudly & Mulvey, 2009).

Attitudes Towards Individuals with Disabilities

A disability can be defined as a mental, physical, sensory, or intellectual impairment that interferes with an individual's ability to effectively participate in society (Leonardi, Bickenbach, Usten & Kostanjsek, 2006). Social scientists have conducted many studies on the general population's attitudes towards individuals with disabilities (Brown, Ouellette-Juntz, Lysaght, & Burge 2011; Werner, 2015; Werner, Peretz, & Roth, 2015; Wilson & Scior, 2015). People tend to hold more positive attitudes towards individuals without disabilities than individuals with disabilities (Werner et al., 2015). In addition, research has found that attitudes towards individuals with disabilities depend on the type of disability. Attitudes towards individuals with mental disabilities have been found to be more negative than towards those with physical disabilities (Brown et al., 2011; Werner, 2015; Werner et al., 2015; Wilson & Scior, 2015).

Physical disabilities. A physical disability can be defined as a physical impairment that interferes with an individual's ability to participate in society (Leonardi et al., 2006). Research

has found attitudinal differences towards individuals with physical disabilities at young ages (Huckstadt & Shutts, 2014; Nowicki & Sandieson, 2002; Werner et al., 2015). Kindergarten students tend to hold more negative attitudes towards their peers with a physical disability than towards their peers without a physical disability (Werner et al., 2015). Huckstadt & Shutts (2014) found that children aged 3-5 years view typically developing children more positively than children with physical disabilities, specifically children in wheelchairs. Similarly, one study indicated elementary students prefer to participate in activities and interact with children who do not have a disability than children with a disability (Nowicki & Sandieson, 2002).

Although negative attitudes towards individuals with physical disabilities still exist, recent studies have found they have improved (Brown et al., 2011, Werner, 2015; Werner et al., 2015; Wilson & Scior, 2015). Studies have found that high school students would interact with peers with physical disabilities and would be willing to participate in activities or projects with them (Brown et al., 2011). In addition, there are fewer negative stereotypes now about individuals with physical disabilities than there have been in the past (Werner, 2015). People do not believe these individuals to have lower intellectual abilities or life skills than the average person (Werner, 2015). People tend to accept individuals with physical disabilities and are willing to build relationships with them (Werner, 2015). Therefore, while some negative attitudes towards individuals with physical disabilities still exist, attitudes towards these individuals have improved (Brown et al., 2011, Werner, 2015; Werner et al., 2015; Wilson & Scior, 2015).

Mental disabilities. A mental disability can be defined as a mental impairment that affects an individual's ability to participate in society (Leonardi et al., 2006). Wilson & Scior (2015) found that adults tend to have negative attitudes towards individuals with intellectual

disabilities. In addition, people prefer to interact with an individual without a mental disability than an individual with a mental disability (Werner et al., 2015).

Comparison of attitudes towards physical and mental disabilities. Many researchers have found that people have more positive attitudes towards individuals with physical disabilities than individuals with mental disabilities (Brown et al., 2011; Werner, 2015; Werner et al., 2015). Brown et al. (2011) found that high school students are more likely to interact with peers with physical disabilities than peers with mental disabilities. Similarly, it was found that adults tend to hold more negative stereotypes and believe individuals with mental disabilities to be more dangerous than individuals with physical disabilities (Werner, 2015). Overall, there are more stereotypes, like being dangerous and having lower abilities, associated with mental disabilities than with physical disabilities (Werner, 2015). It has also been found that people who have more knowledge of mental disorders and disabilities tend to have more positive attitudes towards them than do people with no knowledge (Addison & Thorpe, 2003).

Autism Spectrum Disorder. Autism Spectrum Disorder (ASD) is a developmental disorder that is associated with difficulties in communication, difficulties in social interaction, and an increase in repetitive behaviors (American Psychiatric Association, 2013). It is a neurological disorder, which means that the difficulties individuals with ASD face are due to abnormalities in the brain functioning, not due to physical impairments (American Psychiatric Association, 2013). To be diagnosed, ASD symptoms must cause significant impairment in an important area of functioning and must be present in the early developmental period (American Psychiatric Association, 2013). Since ASD is a spectrum disorder, severity of the disorder can vary from requiring support, substantial support, and very substantial support (American Psychiatric Association, 2013). The Diagnostic and Statistical Manual for Mental Disorders

(DSMV) refers to ASD as one of the most prevalent developmental disorders, specifically affecting about 1% of the US population (American Psychiatric Association, 2013). As a result of this high prevalence, many researchers have narrowed their research to focus on ASD and the general population's attitudes towards it.

Factors Related to Attitudes Towards Individuals with ASD

Attitudes towards individuals with ASD, and how these attitudes are formed, vary from positive to negative among the general population. Several factors have been found to account for variance in attitudes including differences in prior knowledge and experience, the behaviors of individuals with ASD, labeling individual's with the diagnosis ASD, and the comparison of ASD to another disorder (Butler & Gillis, 2011; Campbell, 2008; Chambres, Auxiette, Vansingle, & Gil 2008; Dachez & Ameline, 2015; Fleva, 2015; Jensen et al., 2016). Chambres et al. (2008) found people's negative attitudes and stereotypes depend on whether an individual with ASD is exhibiting atypical behaviors, like throwing a tantrum, or typical behaviors, like sitting quietly and smiling. Research has also shown that personal contact with an individual with ASD will result in more positive attitudes towards that individual with ASD (Dachez & Ameline, 2015; Fleva, 2015). Some studies have found that positive attitudes towards a specific individual with ASD will transfer over to all individuals with ASD (Dachez & Ameline, 2015; Fleva, 2015). It has also been found that individuals with ASD are viewed more positively when being compared to individuals with mental illness, like schizophrenia (Durand-Zaleski et al., 2012; Jensen et al., 2016).

Prior Experience and Knowledge

Studies have found that positive attitudes towards people with ASD will increase with increased awareness and interaction with individuals with ASD (Collier et al., 2015). It is been

found that middle school students' attitudes and desires to interact with individuals with ASD were positive when they had more previous experience and awareness of the disorder (Campbell, 2008; Mavropoulou & Sideridis, 2014). Similarly, adults who had previous contact with an individual with ASD had more positive attitudes toward individuals with ASD in general (Dachez & Ameline, 2015). Studies of people with no previous contact or knowledge of ASD support these findings as well. Huws & Jones (2010) found that participants with no previous experience or knowledge of ASD were more likely to hold negative attitudes towards individuals with ASD, believing them incapable of functioning independently, following societal rules of behavior, and fitting adequately into society.

Behaviors of Individuals with ASD

Attitudes towards individuals with ASD can vary depending on what behaviors the individual with ASD is exhibiting. Chambres et al. (2008) found that participants perceived a child negatively when exhibiting problem behaviors associated with ASD, like making abnormal sounds, throwing a temper tantrum, or crying for no specific reason. In addition, people tend to hold negative attitudes towards individuals who display other atypical behaviors associated with ASD, like avoiding eye contact, fixating on routines, and having difficulties with social interactions (Butler & Gillis, 2011).

On the other side of this, individuals with ASD are perceived positively when exhibiting socially accepted behaviors (Butler & Gillis, 2011; Chambres et al., 2008). Chambres et al. (2008) found that participants viewed a child with ASD positively when exhibiting socially acceptable behaviors, like talking to a camera or using a computer. Similarly, Butler and Gillis (2011) found that people tend to hold positive attitudes towards individuals with ASD who

display typical behaviors, like being comfortable in social situations, maintaining eye contact, and remaining flexible in their routines.

Labeling of Individuals with ASD

Many studies examine the impact of labeling individuals with ASD and how this affects people's attitudes towards them (Chambres et al., 2008; Matthews, Ly, & Goldberg, 2015). Chambres et al. (2008) found that individuals exhibiting atypical behaviors who were labeled with ASD were seen more positively and assessed less severely than when not labeled with the diagnosis ASD. Other studies come to similar conclusions, finding that individuals with ASD who were exhibiting atypical behaviors and labeled with high functioning autism were perceived more positively than those not labeled with ASD (Matthews et al., 2015).

However, other studies refute these results. Butler and Gillis (2011) used vignettes to study the impact of labels on negative stereotypes and negative attitudes towards individuals with ASD. Their results showed that labeling these target individuals with ASD did not influence participant attitudes towards these individuals (Butler & Gillis, 2011). This means that individuals with ASD who were exhibiting atypical behaviors and labeled with ASD were assessed just as negatively as those who were not labeled with ASD. A possible explanation for these results could be that the participants in the study did not hold many negative stereotypes towards the label of ASD. Therefore, the label did not influence attitudes, only the behaviors the individual was exhibiting (Butler & Gillis, 2011).

Attitudes Towards ASD in Comparisons to Other Diagnoses

Multiple studies have addressed attitudes towards ASD in comparison to mental illnesses or disorders such as schizophrenia and bipolar disorder. Previous studies have found that people have more positive attitudes towards individuals with ASD than towards individuals with severe

mental illness (Durand-Zaleski et al., 2012; Jensen et al., 2016). Specifically, the general population holds more stereotypes, stigmas, and prejudices towards individuals with schizophrenia than individuals with ASD (Durand-Zaleski et al., 2012; Jensen et al., 2016). When compared to other diagnoses like schizophrenia, it has been specifically found that the majority of people believed individuals with ASD to be more intelligent than the average person (Jensen et al., 2016).

Priming Effects on Attitudes

Priming is based on the idea that an individual's external environment can influence that individual's thoughts, attitudes, and behaviors (Minton, Cornwell, Kahle, 2016; Tsalikis, 2015). Priming works by adding information (words, scenarios, articles) into an individual's environment and seeing if it has an effect on that individual's beliefs or future behaviors (Minton et al., 2016). What is available in a person's environment can prime them to believe certain ideas. The ways in which media sources report information can prime people's subsequent beliefs or affect people's emotions (Minton et al., 2016). In psychology, priming is used frequently to study the types of primes that affect attitudes or perceptions. The present study used priming to assess its effect on participants' attitudes towards ASD. While the present study used scenarios, there are different methods of priming that evoke positive and negative effects used in research today.

Positive and Negative Priming Effects

Previous literature has mainly focused on negative priming effects. Brewer, Zoanetti, & Young (2016) used negative news articles about an individual with ASD to induce negative attitudes towards these individuals. It has also been found that priming participants with negative aspects of the disability lead to negative priming effects, specifically being less autonomous

(Wang & Dovidio, 2011). In relation to individuals with ASD, Chambres' et al. (2008) study used negative priming effects when priming participants with videos of a child with ASD exhibiting problem behaviors, like the child having a temper tantrum or crying for no reason.

Previous studies assessing positive priming effects are limited. One study that did look at positive priming effects found that priming participants with self-control words led to positive attitudes and diminished thoughts of discrimination about a target individual (Araya et al., 2002). Similarly, providing positive educational messages can cause positive priming effects in participants (Brewer, Zoanetti, & Young, 2016). Except for these few studies, the majority of priming studies use negative vs. neutral priming to focus solely on the negative priming outcomes of their manipulation (Wang & Dovidio, 2011; Chambres et al., 2008).

The Present Study

The goal of the present study was to contribute to the knowledge of the effects of priming on college students' attitudes towards individuals with ASD. To date, studies have not assessed both the effects of positive priming as well as the effects of negative priming on people's attitudes towards those with ASD. Priming was done using two vignettes, one describing an adult male diagnosed with ASD in positive terms and the other in negative terms. Based on previous research on priming, it was hypothesized that participants in the "positive prime condition" would have more positive attitudes towards individuals with ASD than would those in the "negative prime condition". It was also hypothesized that participants in the "positive prime condition" would have more positive attitudes towards individuals with ASD than participants in the "control condition" while participants in the "negative prime condition" would have more negative attitudes towards individuals with ASD than the participants in the "control condition".

Method

Participants

Participants (*N*=57) were all undergraduate students at Allegheny College. 78.9% of the sample population were female students (n=45) and the mean age of the sample was 20.11 (SD=1.19). Twelve males and 45 females participated in the study. All students participated in the study on a voluntary basis. Some participants received extra credit for their participation through their psychology course at their Professors' discretion and all participants were entered in a raffle to win a $25 gift card to the Allegheny College bookstore.

Materials

Demographics. The demographics form (See Appendix B) asked participants' age, gender, major, ethnicity, previous experience with an individual with dyslexia, previous experience with an individual with autism, and previous experience with an individual with ADHD. The question asking about previous contact with autism allowed the researcher to account for the potential confounding variable of prior knowledge/experience.

Priming scenarios. All three scenarios, positive, negative, and control, were written by the researcher and described a 25-year old male using the services of a non-profit agency to develop skills needed to obtain employment (See Appendices C, D, & E). The positive and negative priming scenarios were identical except for the description of the behavior of a 25-year old male with autism when he makes mistakes at work. The control scenario aimed to be neutral and did not describe the young man as having a developmental disorder.

Job Evaluation Questionnaire. A Job Evaluation Questionnaire (See Appendix F), written by the researcher, served as a validity check to determine if the participants were aware of the manipulation of positive and negative scenarios. These questions used a Likert scale to ask

participants if the target individual in the scenario should be hired to work full time, not be hired to work full time, or complete another 3-months of job training.

SATA measure. The Societal Attitudes Towards Autism Scale (SATA), a 16-item scale developed by Flood, Bulgrin, & Morgan (2013) (See Appendix G), was used to assess participants' attitudes towards individuals with autism spectrum disorders. This measure used a Likert scale to assess attitudes in general towards individuals with ASD.

Procedure

The study, "Developmental Disabilities in the Workplace" was listed on SONA (Experiment Management System) and described as an examination of perceptions of individuals with developmental disabilities in the work place. Students interested in participating signed up for a specified date and time to complete the study. The testing location was a classroom in Carnegie Hall. Upon arrival, participants were first given an informed consent form to provide them with general information including the risks and benefits of the study. Participants then received a packet of materials in the following order: demographics form, a positive, negative, or control scenario, a job evaluation questionnaire, and the Societal Attitudes Towards Autism Scale (SATA). Participants were randomly assigned to a positive, negative, or control condition and received the corresponding priming scenario. The researcher attempted to have relatively equal numbers of males and females in each condition. Participants were directed to place the completed forms in a sealed box. The box remained unopened until all participants had completed the study. After submitting the questionnaires, participants received a debriefing form and were asked if they had any questions. The study took no longer than thirty minutes.

Design

The independent variable in the present study was the specific priming condition to which participants were randomly assigned: “positive prime condition”, “negative prime condition”, or “control condition”. The dependent variable in the present study was the scores on the SATA measure. The potential confounding variable of participants’ previous knowledge and awareness of autism was assessed through a previous contact question on the Demographic Questionnaire.

Results

A data analysis was conducted using the responses from the entire study sample ($N=57$) to determine each of the conditions reported demographic characteristics of age and gender (Tables 1 and 2). The descriptive statistics for the SATA composite scores are presented in Table 3. A one-way ANOVA was conducted on the SATA composite scores (See Table 4). Table 5 displays a bivariate Pearson’s r correlation for the JEQ question and SATA composite scores. A bivariate Pearson’s r correlation was also conducted on the previous contact question with individuals with ASD and the SATA composite scores (See Table 6). The tests for normality for the SATA variable are presented in Table 7.

The Effects of Priming on the SATA Scores

A one-way ANOVA was conducted on the SATA composite scores (the combined SATA score for each participant) to assess the effect of the positive, negative, and control primes on the SATA scores. The SATA composite scores had a possible range of 16 to 64. A low score on the SATA measure indicated positive attitudes towards people with ASD and high scores indicated negative attitudes towards these individuals. The participants in the positive-condition had an average SATA composite score of 22.75 (SD= 4.38). The participants in the negative-condition had an average SATA composite score of 26 (SD= 3.86). The participants in the control

condition had an average SATA composite score of 23 (SD= 5.62). The effect of priming between-groups on the SATA scores was not statistically significant F (2,54) = 2.45, p = .096 (See Table 4).

Correlation between JEQ and SATA Scores

The JEQ question "Andrew should not be hired by the library to work full time" was evaluated to assess if the scenarios had an effect on participant attitudes. A low response (1) to this question signified a disagreement with the statement and a high response (4) signified an agreement with the statement. For the entire sample, this question had an average score of 1.44 (SD=.708). This means that many participants disagreed with this statement. While the Pearson's r correlation found a positive correlation between answers on the JEQ question and answers on the SATA measure, the correlation was not statistically significant r=. 173, p=. 20 (See Table 5).

Correlation between Previous Contact and SATA Scores

The answers to the previous contact question varied from having little contact with an individual with ASD to being diagnosed with ASD. A lower score (1) on this question indicated little to no experience with an individual with ASD and a high score (7) indicated more experience with ASD. For the entire sample, this question assessing previous contact with ASD had an average score of 2.74 (SD= 1.61). Although low, this average indicates that the majority of participants had some previous contact with an individual with ASD. While the Pearson's r correlation found a negative correlation between answers on the contact question and answers on the SATA measure, the correlation was not statistically significant r=-.217, p=. 11 (See Table 6).

Tests of Normality for the SATA

The data in the present study was assessed for normality to ensure the data was normally distributed. The SATA composite score scales had an average score of 24.18 (SD= 4.77).

Skewness (.24, *SE*=.32) and kurtosis (-.75, *SE*=.62) of the SATA composite scores suggest that normality was met. Figures 1 through 3 show histograms for each of the three conditions. Figure 1 shows the data in the positive-condition was slightly skewed right, figure 2 shows the data in the negative-condition was slightly skewed left, and figure 3 shows the data in the control condition was slightly skewed right. Although all three figures are slightly skewed, the relatively bell-shaped distributions suggest that normality was met. A Shapiro-Wilk test was used to test for the normality of the SATA composite scores, which suggests that the SATA composite scores were normally distributed for the "positive prime condition" (W= .93, df= 20, p =. 13), "negative prime condition" (W= .95, df= 19, p =. 44), and "control condition" (W= .93, df= 18, p =. 20),

Discussion

The study's first hypothesis was that priming in the "positive prime condition" would cause more positive attitudes towards individuals with ASD than would priming in the "negative prime condition". The second hypothesis was that participants in the "positive prime condition" would have more positive attitudes towards individuals with ASD than participants in the "control condition" and that participants in the "negative prime condition" would have more negative attitudes towards individuals with ASD than the participants in the "control condition". No effects for priming condition were found. Therefore, the hypotheses were not confirmed.

The findings of the present study suggest that the behaviors an individual with ASD is exhibiting do not influence people's attitudes. This means that atypical behaviors common with individuals with ASD, like difficulties in social interaction, communication, and increased repetitive behaviors, do not influence the general population's attitudes towards these individuals. The scenarios in the present study focused on difficulties in social interaction and

disruptive behaviors, including yelling and pounding on a desk. The results of this study suggest that these specific behaviors do not influence people's attitudes towards individuals with ASD.

The findings of the present study are not in line with previous research that found the behaviors an individual with ASD is exhibiting will affect participant attitudes towards these individuals (Butler & Gillis, 2011; Chambres et al., 2008). The negative behaviors of the target individual in the present study are similar to those of the target individual in a study conducted by Chambres et al. (2008), which focused on a child with ASD throwing a temper tantrum. While the present study found that the negative behaviors of the target individual did not elicit negative attitudes, Chambres et al. (2008) found that negative behaviors do in fact cause negative attitudes. The differences in findings between the present study and the study conducted by Chambres' et al. (2008) could be due to the nature in how attitudes were measured. Specifically, Chambres' et al. (2008) focused on attitudes solely toward the target individual, while the present study focused on attitudes towards individuals with ASD in general.

Similarly, the positive behaviors of the target individual in the present study did not elicit a significant difference in positive attitudes. These findings are not in line with previous research, which found that a target individual with ASD is viewed positively when exhibiting typical behaviors, like smiling, maintaining eye contact, and being comfortable in social situations (Butler & Gillis, 2011; Chambres et al., 2008). The differences in results between the present study and those previously mentioned could be due to the present study's focus on the target individual's adequacy in social interactions and lack of focus on other behaviors, like flexibility in routines and maintaining eye contact.

A possible reason the present study's findings are not in line with previous research could be because the scenarios did not serve as adequate primes. The present study had no significant

correlation between answers on the JEQ Question, ”Andrew should not be hired by the library to work full time” and answers on the SATA measure. These results indicate that participant’s beliefs about the target individual with ASD’s adequacy for the job did not affect their attitudes towards individuals with ASD in general. In addition, the mean score of this JEQ question was similar for all conditions. These average scores show that Andrew’s negative behaviors may not have been strong enough to make participants think Andrew should not be hired for the job. Therefore, it is can be suggested that the negative behaviors were not strong enough to effect participant attitudes towards individuals with ASD in general.

Previous research has shown that a participant’s previous knowledge, contact, and awareness of ASD can make their attitudes positive towards individuals with ASD in general (Campbell, 2008; Collier et al., 2015; Dachez & Ameline, 2015; Huws & Jones, 2010; Mavropoulou & Sideridis, 2014). Although there was no significant correlation between the answers on the previous contact question and the SATA score answers, there was a slight negative correlation between the two variables. This indicates that higher scores on the previous contact question correlated with lower scores on the SATA measure, which signifies positive attitudes towards individuals with ASD. In addition, almost all participants had at least some previous experience or contact with a person with ASD. This previous knowledge could have caused participant attitudes to be positive, regardless of which scenario the participant read.

A possible reason for positive attitudes and lower scores on the SATA measure could also be due to social desirability bias. Social desirability bias is when participants tend to answer self-report questionnaires in a more socially acceptable manner than their true thoughts actually are (Kim & Kim, 2016). This bias hurts the validity of the SATA measure since it uses a self-report questionnaire to determine attitudes towards individuals with ASD. Therefore, it is

possible that the results of the present study were not statistically significant because participants wanted to seem socially desirable, causing their attitudes to be positive regardless of which scenario the participant read.

Limitations

One limitation of the present study exists from the restricted diversity of the sample size. Only 57 college students participated in the present study, 45 of whom were females and 12 of whom were males. In addition, 47 participants were White, while the rest of the participants identified with other ethnicities. This limited range of genders and ethnicities show that the sample was not representative of the college student population. Examining a wider variety of genders and ethnicities would help increase the generalizability of the results.

Another limitation of the present study exists from restricting the sample population to only Allegheny College students, meaning that students from other colleges could not participate in the study. This limits the generalizability of the results to other college and university students. In addition, administering the study to only college students limits the generalizability of the results to the general population as whole. Being a college student may make participants more knowledgeable or aware of ASD, which would affect their attitudes towards individuals with ASD.

The researcher wrote the scenarios used in the present study because no other validated vignettes specifically addressed the behaviors that this study wanted to assess. Specifically, no other studies had three similar scenarios that portrayed a target individual with ASD positively, negatively, and neutrally. Although the scenarios in the present study were modeled off of vignettes implemented in other studies, they still serve as a limitation because these exact scenarios were not previously used. Therefore, the scenarios may not have served as effective

primes. Implementing a scenario from a previously completed study may have made the results of the study more reliable. In addition, it could have been useful to pilot or test the scenarios used in the present study before conducting the research to ensure that they would have served as effective primes.

Future Research

Future research should continue to examine the effects of priming on attitudes towards individuals with ASD, but should aim to look at different populations. The present study only looked at college students, the majority of whom were female and white. Examining the effect of primes on more diverse populations could contribute to the current literature on attitudes towards individuals with ASD.

Another area of future examination in attitudes towards individuals with ASD could be to use different types of priming. Chambres et al. (2008) used videos to prime participants and the present study used scenarios. The use of different primes, like prime words or prime questions, could add to the literature on attitudes towards ASD. Similarly, future research should use previously validated primes. The present study's scenarios did not serve as strong primes, so using primes that are proven to be effective could help future researchers determine what behaviors of individuals with ASD contribute to attitudes towards these individuals.

In addition, future studies should focus on different types of behaviors an individual with ASD is exhibiting. The present study used the behaviors of yelling and pounding on the desk in the "negative prime condition" scenario. Future studies should use different behaviors associated with ASD, like having difficulty making eye contact and difficulties in communication. This would add to the literature on the types of behaviors that effect attitudes towards individuals with ASD.

Although the present study did not have statistically significant results, it continues to add to the growing literature on the topic of attitudes towards individuals with ASD because it assessed the effect of scenarios on attitudes and the effect of certain behaviors on attitudes. The scenarios used in the present study did not have an effect on attitudes towards individuals with ASD, suggesting that reading a scenario may not affect attitudes. In addition, the present study shows that certain behaviors of individuals with ASD, like yelling, may not have an affect on attitudes towards these individuals. Identifying the factors that contribute to attitudes towards individuals with ASD is important because it can help predict how people will interact with these individuals and whether they will be accepted or rejected into society.

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Table 1
Frequencies: Participant Age by Condition

Participant Group		*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
Positive	18	2	10.0	10.0	10.0
	19	5	25.0	25.0	35.0
	20	5	25.0	25.0	60.0
	21	7	35.0	35.0	95.0
	22	1	5.0	5.0	100.0
	Total	20	100.0	100.0	
Negative	18	1	5.3	5.3	5.3
	19	2	10.5	10.5	15.8
	20	8	42.1	42.1	57.9
	21	5	26.3	26.3	84.2
	22	2	10.5	10.5	94.7
	23	1	5.3	5.3	100.0
	Total	19	100.0	100.0	
Neutral	18	2	11.1	11.1	11.1
	19	6	33.3	33.3	44.4
	20	5	27.8	27.8	72.2
	21	2	11.1	11.1	83.3
	22	3	16.7	16.7	100.0
	Total	18	100.0	100.0	

Table 2

Frequencies: Participant Gender by Condition

Participant Group		*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
Positive	Male	5	25.0	25.0	25.0
	Female	15	75.0	75.0	100.0
	Total	20	100.0	100.0	
Negative	Male	4	21.1	21.1	21.1
	Female	15	78.9	78.9	100.0
	Total	19	100.0	100.0	
Neutral	Male	3	16.7	16.7	16.7
	Female	15	83.3	83.3	100.0
	Total	18	100.0	100.0	

Table 3

Descriptive Statistics of the SATA Composite scores

	N	*Mean*	*Std. Deviation*	*Skewness*		*Kurtosis*	
	Statistic	*Statistic*	*Statistic*	*Statistic*	*Std. Error*	*Statistic*	*Std. Error*
SATAcomposite	57	24.1754	4.77016	.242	.316	-.754	.623

Table 4

One-Way ANOVA of the SATA Composite Scores

	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Between Groups	105.996	2	52.998	2.450	.096
Within Groups	1168.250	54	21.634		
Total	1274.246	56			

Table 5

Pearson's r Correlation of JEQ and SATA Composite Scores

		Andrew should not be hired by the library to work full time	*SATAcomposite*
Andrew should not be hired by the library to work full time	Pearson Correlation	1	.173
	Sig. (2-tailed)		.199
	N	57	57
SATAcomposite	Pearson Correlation	.173	1
	Sig. (2-tailed)	.199	
	N	57	57

Table 6

Pearson's r Correlation of Previous Contact and SATA Composite Scores

		How much contact have you had with a person(s) with autism	*SATAcomposite*
How much contact have you had with a person(s) with autism	Pearson Correlation	1	-.217
	Sig. (2-tailed)		.105
	N	57	57
SATAcomposite	Pearson Correlation	-.217	1
	Sig. (2-tailed)	.105	
	N	57	57

Table 7
Test of Normality

	Participant Group	*Shapiro-Wilk*		
		Statistic	*df*	*Sig.*
SATAcomposite	Positive	.926	20	.131
	Negative	.952	19	.435
	Neutral	.931	18	.200

Figure 1

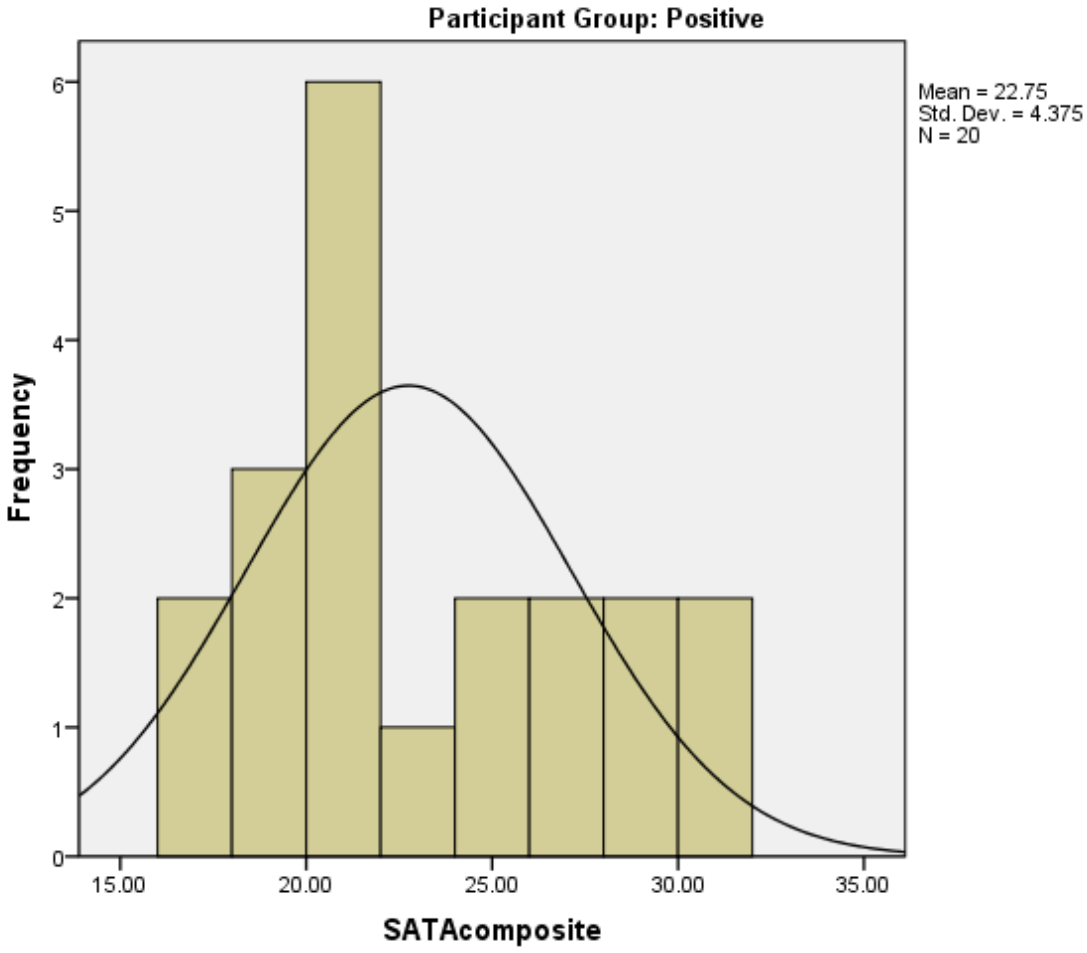

Participant Group: Positive
Mean = 22.75
Std. Dev. = 4.375
N = 20
Frequency
0
1
2
3
4
5
6
15.00
20.00
25.00
30.00
35.00
SATAcomposite

Figure 2

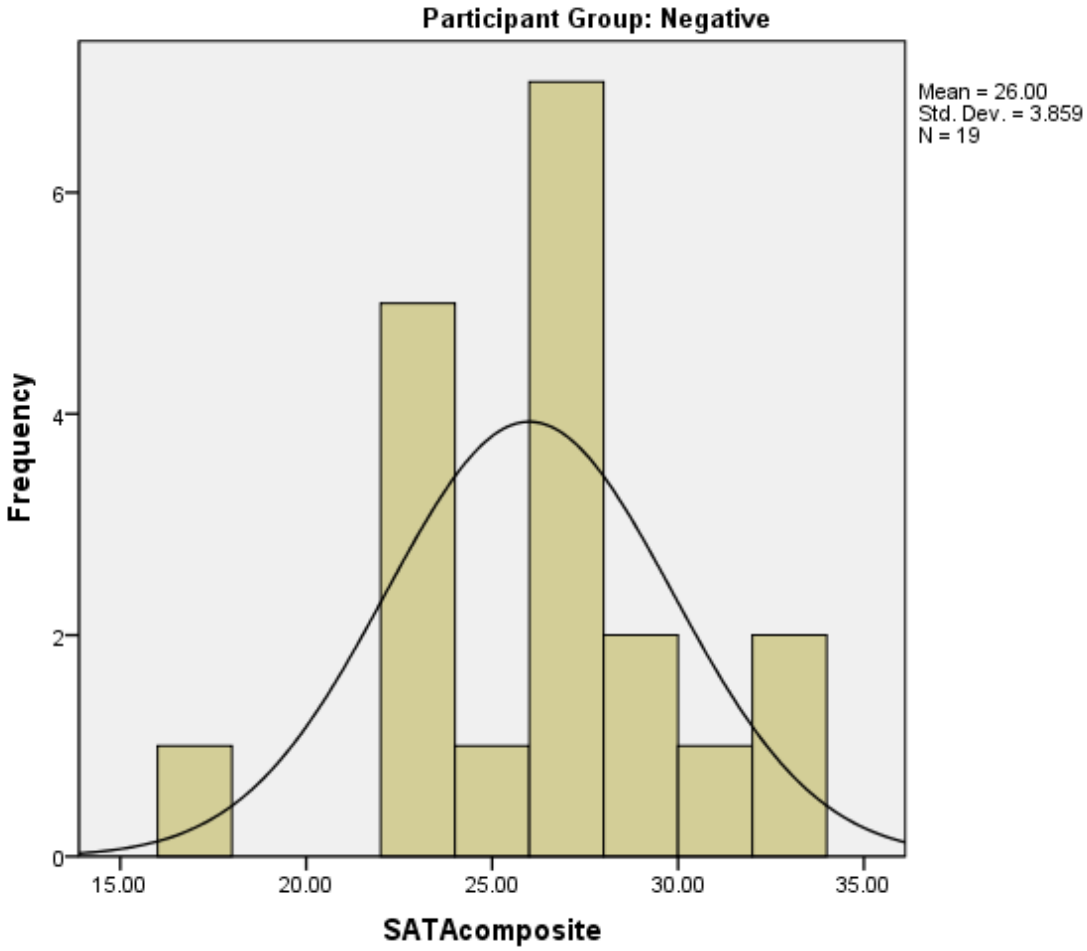
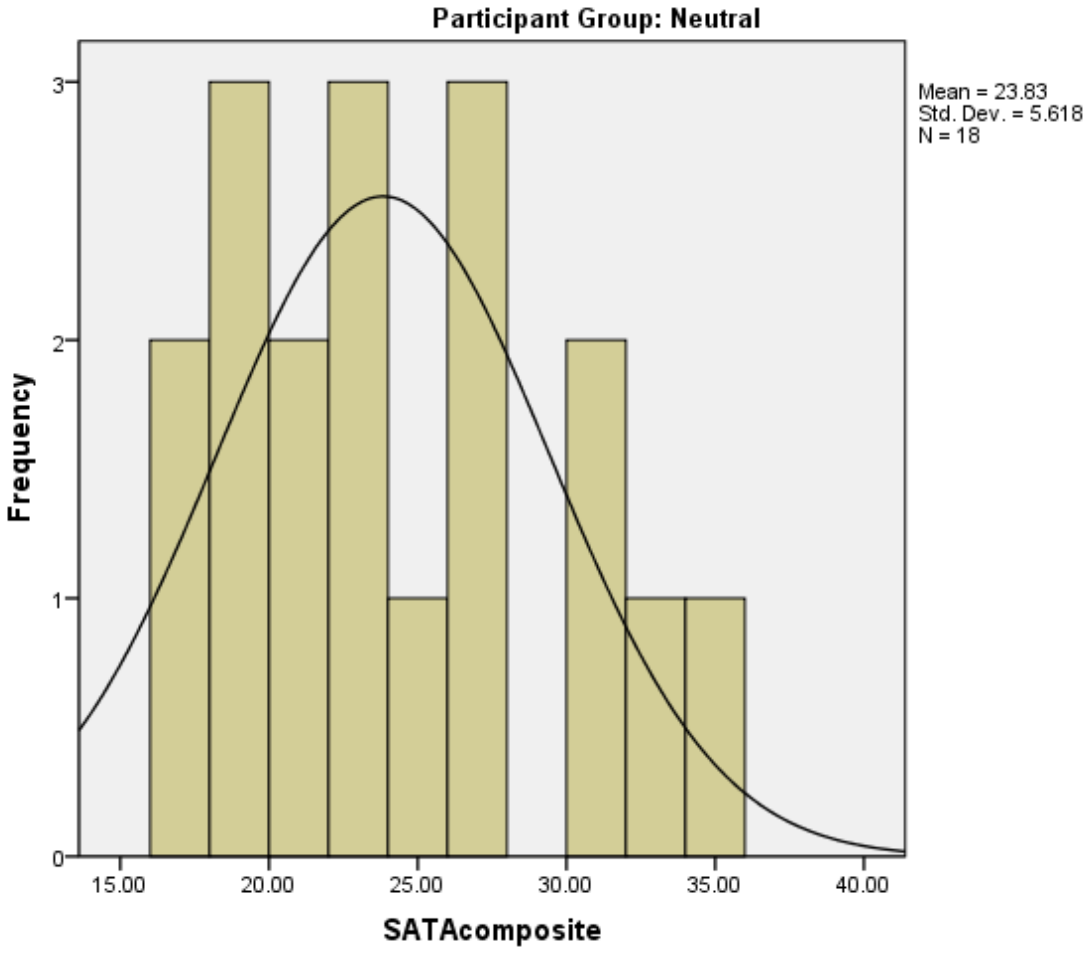

Participant Group: Negative
Mean = 26.00
Std. Dev. = 3.859
N = 19
Frequency
0
2
4
6
15.00
20.00
25.00
30.00
35.00
SATAcomposite

Figure 3


Participant Group: Neutral
Mean = 23.83
Std. Dev. = 5.618
N = 18
Frequency
0
1
2
3
15.00
20.00
25.00
30.00
35.00
40.00
SATAcomposite

Appendix A
Research Participant Consent Form

Developmental Disabilities in the Workplace

Eleni Brown
Allegheny College
Department of Psychology

Purpose of Research: The purpose of this research is to assess perceptions of the appropriateness of hiring people with developmental disabilities in the workplace.

Specific Procedures: I understand that I will be asked to complete a basic demographic questionnaire, to read a scenario about a target individual in the workplace, to complete a job evaluation questionnaire on the target individual, and to complete a developmental disability questionnaire. I understand that this study will take about 30 minutes to complete.

Risks to the Individual: I understand that the risks of participating in this study are no more than I would experience in everyday life.

Benefits to the Individual or Others: I understand that the main benefit to participating in this study is an exposure to research designs at Allegheny College. Additionally, this study will help the researcher learn more about college students' views about the employability of individuals with developmental disorders.

Compensation: I understand that I will not be receiving compensation for this study. However, individual professors at Allegheny College may offer class credit/extra credit.

Anonymity: I understand that the data I provide today are completely anonymous and that my name will never be associated with the data I provide. I understand that the researcher is not interested in any one person's responses. Therefore, the researcher will combine the data I provide with those of all other participants and will look for general patterns in the combined data. My information will remain anonymous. Any reports made based on the data in this study will focus solely on these general patterns. Furthermore, I understand that all data will be maintained under lock and key in the Department of Psychology. I understand that this consent form will also be stored under lock and key, but separately from my data. In addition, I understand that my entry in the drawing will never be associated with my data or consent form. I understand that when the data I provide today are no longer needed, they will be shredded.

Voluntary Nature of Participation: I understand that I do NOT have to participate in this study. Furthermore, I understand that if I agree to participate, I can withdraw my participation at any time without penalty. In addition, I understand that I may skip any individual questions that I do not wish to answer and any procedures that I do not wish to complete.

Contact Information: If I have any questions or concerns about this research project, I can contact Eleni Brown at browne2@allegheny.edu or Professor Deborah Dickey at ddickey@allegheny.edu. If I have any questions or concerns about the treatment of research participants (including myself), I can contact Allison Connell, Chair of the Allegheny College Institutional Review Board (IRB) at aconnell@allegheny.edu.

I understand that my signature below indicates that I am at least 18 years of age at the time of my participation in this study and that I have received a copy of this informed consent form. My questions have been answered, and I agree to participate in the study.

Name (printed): _____
Signature: _____
Date: _____

Appendix B
Demographic questionnaire (all participants complete)
Developmental Disabilities in the Workplace

What is your age? ____

Please circle your answer for each the following questions:

What is your sex/gender?

Male

Female

Prefer not to identify as male or female

What is your current major?

Humanities (Art, English, etc.)

Natural Sciences (Biology, Chemistry etc.)

Social Sciences (Economics, Psychology, etc.)

Other _____

Please indicate your ethnicity/race.

Asian American

Hispanic/Latino/a/Chicano

Black, African American

White, Caucasian

Native American/American Indian

Native Hawaiian or other Pacific Islander

Other _____

Prefer not to specify

How much contact have you had with a person(s) with attention deficit hyperactivity disorder (ADHD)?

Little to no contact

Have been employed somewhere where I work with a person with ADHD

Have a friend with ADHD

Have a family member with ADHD

Have volunteered with a person with ADHD

Have been a primary caregiver for a person with ADHD

I am an individual with ADHD

Other _____

How much contact have you had with a person(s) with autism?

Little to no contact

Have been employed somewhere where I work with a person with autism

Have a friend with autism

Have a family member with autism

Have volunteered with a person with autism

Have been a primary caregiver for a person with autism

I am an individual with autism

Other _____

How much contact have you had with a person(s) with dyslexia?

Little to no contact

Have been employed somewhere where I work with a person with dyslexia

Have a friend with dyslexia

Have a family member with dyslexia

Have volunteered with a person with dyslexia

Have been a primary caregiver for a person with dyslexia

I am an individual with dyslexia

Other _____

Appendix C

Please read the following excerpt about an organization that works with individuals with autism and an individual with autism who is striving to enter the job market.

Overview of organization:

Services and Supports for Autism Inc. (SSA) is a non-profit organization that provides supports and services for individuals with autism and their families. SSA offers a range of supports in many different areas including schooling, therapeutic recreation activities, and job training.

Client information:

Andrew is a 25-year-old man who was diagnosed with Autism Spectrum Disorder as a child. At age 20, Andrew began participating in SSA's day program. Now, at age 25, Andrew has entered in SSA's job-training program.

The specifics of SSA's job-training program:

Each participant in the job-training program at SSA goes through a set of steps: job training at the SSA center, assessment, job placement, and job coaching. The job training at the SSA center teaches specific job skills and techniques that help participants manage behaviors. Participants are assessed through interviews and observations in different settings. Based on this assessment, participants are placed at a specific job where they receive job coaching from an employee of SSA. After 3 months, participants are evaluated to see whether they need to remain in the job-training program or to graduate and work independently at a job in the community.

Andrew's job placement:

Based on Andrew's assessment results, Andrew was placed at the job site of the local library due to his interest in books, libraries, and because of the work habits he displayed at his previous day program. The following is a narrative summary of Andrew's work at the library over the past two months, which was completed by Andrew's job coach.

SSA three-month job summary

Client: Andrew. Written by job coach, Mark

Andrew is a 25-year-old man who is receiving services from the non-profit organization entitled Services and Supports for Autism (SSA). His job-training program assigned him to work at the local public library. Andrew works at the book checkout line, organizes the books on the shelves, and puts returned books back in their place at the library. Andrew has told many people that he really likes his job site at the library. He is well groomed and known for dressing neatly. Some days at the library he gets along well with his co-workers and is on friendly terms with them. Sometimes he comments that he feels happy and begins his day by chatting briefly with the people he works with and then starting his work. Andrew takes daily coffee and lunch breaks with his co-workers and is careful to return to the library on time. Social situations with people he doesn't know appear difficult for Andrew. Working the book checkout line sometimes makes Andrew anxious, especially when he makes a mistake. At such times, Andrew tends to get very upset. On several occasions, he has yelled loudly at customers in the book checkout line or pounded on the desk. Several customers have gone to other employees and managers to complain about Andrew's behavior, saying they are afraid of him. After several verbal warnings, the supervisor at the library has given Andrew a written warning that states if he has one more outburst at customers he will not be able to continue working at the local library anymore.

Appendix D

Please read the following excerpt about an organization that works with individuals with autism and an individual with autism who is striving to enter the job market.

Overview of organization:

Services and Supports for Autism Inc. (SSA) is a non-profit organization that provides supports and services for individuals with autism and their families. SSA offers a range of supports in many different areas including schooling, therapeutic recreation activities, and job training.

Client information:

Andrew is a 25-year-old man who was diagnosed with Autism Spectrum Disorder as a child. At age 20, Andrew began participating in SSA's day program. Now, at age 25, Andrew has entered in SSA's job-training program.

The specifics of SSA's job-training program:

Each participant in the job-training program at SSA goes through a set of steps: job training at the SSA center, assessment, job placement, and job coaching. The job training at the SSA center teaches specific job skills and techniques that help participants manage behaviors. Participants are assessed through interviews and observations in different settings. Based on this assessment, participants are placed at a specific job where they receive job coaching from an employee of SSA. After 3 months, participants are evaluated to see whether they need to remain in the job-training program or to graduate and work independently at a job in the community.

Andrew's job placement:

Based on Andrew's assessment results, Andrew was placed at the job site of the local library due to his interest in books, libraries, and because of the work habits he displayed at his previous day program. The following is a narrative summary of Andrew's work at the library over the past two months, which was completed by Andrew's job coach.

SSA three-month job summary

Client: Andrew. Written by job coach, Mark

Andrew is a 25-year-old man who is receiving services from the non-profit organization entitled Services and Supports for Autism (SSA). His job-training program assigned him to work at the local public library. Andrew works at the book checkout line, organizes the books on the shelves, and puts returned books back in their place at the library. Andrew has told many people that he really likes his job site at the library. He is well groomed and known for dressing neatly. He gets along well with his co-workers and is on friendly terms with them. He often comments that he feels happy and begins his day by chatting briefly with the people he works with and then starting his work. Andrew takes daily coffee and lunch breaks with his co-workers and is careful to return to the library on time. Social situations with people he doesn't know are difficult for Andrew. Working the book checkout line at the library sometimes makes Andrew anxious, especially when he makes a mistake. At the start of the job training, Andrew tended to get very upset at such times. However, Andrew is now successfully able to manage his emotions by using techniques he's learned through the job-training program. When he starts to get upset, he knows to remove himself from the situation and take a moment to himself. Several customers have complimented Andrew on the quality of his work and said that they enjoy talking to him.

Appendix E

Please read the following excerpt about an organization that works with individuals to find jobs and on an individual who is striving to enter the job market.

Overview of organization:

Selective Searches Associated (SSA) is a non-profit organization that provides supports and services for individuals who have difficulty finding jobs. SSA offers a range of supports for these individuals including job training, job coaching, and assistance in job searching.

Client Information:

Andrew is a 25 year-old-man who lives at home with his parents. He has held a number of jobs but hasn't found a good fit for his interests and skills. Now, at age 25, Andrew has entered in SSA's job-training program.

The specifics of SSA's job-training program:

Each participant of the job-training program at SSA goes through a set of steps: job training at the SSA center, assessment, job placement, and job coaching. The job training at the SSA center teaches specific job skills and techniques that can be used in the community. Participants are assessed through interviews and observations in different settings. Based on this assessment, participants are placed at a specific job where they receive job coaching from an employee of SSA. After 3 months, participants are evaluated to see whether they need to remain in the job-training program or to graduate and work independently at a job in the community.

Andrew's job placement:

Based on Andrew's assessment results, Andrew was placed at the job site of the local library due to his interest in books, libraries, and because of the work habits he displayed in his home. The following is a narrative summary of Andrew's work at the library over the past three months, which was completed by Andrew's job coach.

SSA three-month job summary

Client: Andrew. Written by job coach, Mark

Andrew is a 25-year-old man who is using services of the non-profit organization entitled Selective Searches Associated (SSA). His job-training program has assigned him to work at the local library. Andrew works the book checkout line, organizes the books on the shelves, and puts returned books back in their place at the library. Andrew has told many people that he likes his job site at the library. He is well groomed and known for dressing neatly. He gets along well with his co-workers and is on friendly terms with them. He often comments that the job is relaxing. Andrew begins his day by chatting briefly with his coworkers before starting his assigned tasks. Andrew takes daily coffee and lunch breaks with his co-workers and is careful to return to the library on time. He does a satisfactory job when working the book checkout line, remaining calm, even when he makes a mistake. Customers have given library staff little feedback about Andrew, presumably because his work at the library is adequate and therefore not noticeable.

Appendix F
Job Evaluation Questionnaire

Please answer the following job evaluation questions about Andrew using the numbers listed below. Please answer as honestly as you can. There are no "right" answers.

(1) Strongly Disagree
(2) Disagree
(3) Agree
(4) Strongly Agree

1. Andrew should be hired by the library to work full time.

1 2 3 4

2. Andrew should complete another 3 months of the job coaching through SSA.

1 2 3 4

3. Andrew should not be hired by the library to work full time.

1 2 3 4

Appendix G
Developmental Disabilities Questionnaire

Please answer the following questions using the numbers listed below. Please answer as honestly as you can. There are no "right" answers.

(1) Strongly Disagree
(2) Disagree
(3) Agree
(4) Strongly Agree

1. People with autism should not engage in romantic relationships.

1 2 3 4

2. People with autism should have the opportunity to go to college.

1 2 3 4

3. People with autism should not have children.

1 2 3 4

4. People with autism should be institutionalized for their safety and others.

1 2 3 4

5. If a facility to treat people with autism opened in my community, I would consider moving out.

1 2 3 4

6. Individuals with autism are incapable of living on their own.

1 2 3 4

7. I would be afraid to be around a person with autism.

1 2 3 4

8. A person with autism is an emotional burden to his/her family.

1 2 3 4

9. I would be comfortable sitting next to a person with autism in the same class.

1 2 3 4

10. A person with autism is a financial burden to his/her family.

1 2 3 4

11. People with autism should be encouraged to marry someone with autism.

1 2 3 4

12. People with autism are incapable of forming relationships and expressing affection.

1 2 3 4

13. Children with autism should be fully integrated into mainstream classes.

1 2 3 4

14. I would be uncomfortable hugging a person with autism.

1 2 3 4

15. People with autism cannot understand other people's feelings.

1 2 3 4

16. Students with autism who are mainstreamed into regular classrooms are a distraction to students without autism in that classroom.

1 2 3 4

Appendix H

RESEARCH PARTICIPANT DEBREIFING

Developmental Disabilities in the Workplace
Eleni Brown
Allegheny College
Department of Psychology

Thank you very much for your participation in my study. Your assistance is greatly appreciated! The purpose of this research was to assess the effects of positive and negative priming on college students' attitudes towards individuals with autism. I hypothesized that participants who read a scenario positively describing an individual with autism would have more positive attitudes toward individuals with autism than did participants who read a scenario negatively describing an individual with autism. In addition, I hypothesized that participants who were primed positively would have more positive attitudes towards individuals with autism than participants in the control condition and participants who were primed negatively would have more negative attitudes towards individuals with autism than participants in the control condition. I did not disclose the focus of my study because I did not want to bias your responses.

There are many studies that examine the factors that influence attitudes towards individuals with autism. Below are the citations for additional sources of information on this topic if you would like to know more.

Brewer, N., Zoanetti, J., Young, R., L., (2016). The influence of media suggestions about links between criminality and autism spectrum disorder. *Autism*, 1-5.

Chambres, P., Auxiette, C., Vansingle, C., & Gil, S. (2008). Adult attitudes toward behaviors of a six-year-old boy with autism. *Journal of Autism and Developmental Disorders, 38*(7), 1320-7.

The data provided by all participants are completely anonymous and participants' names never will be associated with the data they provide. Also, all data will be stored under lock and key in the Department of Psychology at Allegheny College. The consent form you signed will also be stored under lock and key, but separately from the data. If you entered the drawing, your entry never will be associated with the data or the consent form. When the data are no longer needed, they will be shredded.

If you have any questions or concerns about this research project, you may contact Professor Deborah Dickey at ddickey@allegheny.edu. Also, you may contact the researcher, Eleni Brown at browne2@allegheny.edu, if you have any concerns about this research project or if you would like to be provided with a copy of the findings of this research when completed. If you have questions or concerns about the treatment of research participants, including yourself, you may contact Allison Connell, Chair of the Allegheny College Institutional Review Board (IRB) at aconnell@allegheny.edu. If you have any concerns of psychological nature, you may contact the Allegheny College Counseling Center at 814-332-4368. If you have any health-related concerns, please contact the Allegheny College Health Center (Winslow Health Center) at 814-332-4355 or your personal physician.

Thank you for your participation in my senior project!